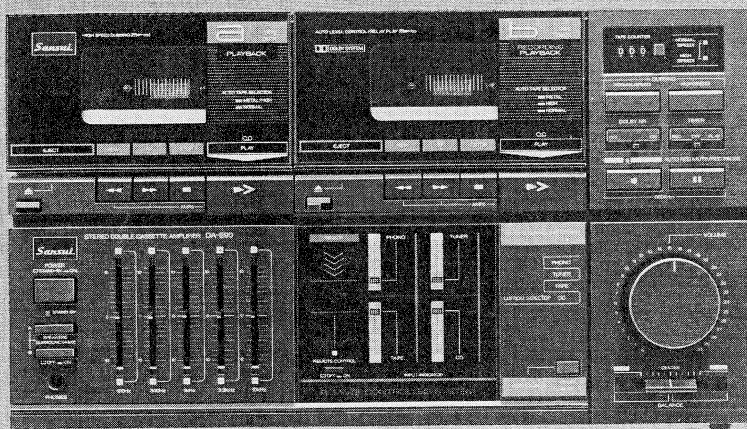


SERVICE MANUAL

STEREO DOUBLE CASSETTE AMPLIFIER

SANSUI DA-E90/E70



CAUTION

1. Parts identified by the $\triangle$ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

•SPECIFICATIONS

•DA-E90

Amplifier section

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.5% total harmonic distortion.

75 watts per channel into 8 ohms.

Load impedance..... 8 ohms

Total harmonic distortion

..... less than 0.5% at or below rated min. RMS power output

Frequency response (at 1 watt)

Overall (from VIDEO S./AUX)

..... 10 to 50,000 Hz, +1 dB
-4 dB

Input sensitivity and impedance (at 1 kHz)

VIDEO S./AUX..... 150 mV/47 kohms

Signal to noise ratio (short-circuit, A-network)

VIDEO S./AUX..... Better than 90 dB

Equalizer frequency 100 Hz, 330 Hz, 1 kHz,
3.3 kHz, 10 kHz

Level variation range... ± 10 dB

Cassette deck section

Track format 4-track/2-channel system

Tape speed..... 4.8 cm/sec

Heads

Rec/play head..... HIGH-Bs hard permalloy

Play head HIGH-Bs hard permalloy

Erase head..... Double-gap HIGH-Bs ferrite

Motor Electronically controlled DC motor $\times 2$ (2 speed)
Reels: DC Motor $\times 2$

Wow/flutter 0.06% max (WRMS)

Fast forwarding (rewinding) time

..... Approx. 100 sec.
(for C-60 tape)

Frequency response (-20 VU recording/playback)

Normal tape (LH) 20 to 15,000 Hz
(30 to 14,000 Hz ± 3 dB)

Chrome tape 20 to 16,000 Hz
(30 to 15,000 Hz ± 3 dB)

Metal tape 20 to 16,000 Hz
(30 to 15,000 Hz ± 3 dB)

Erase rate (metal tape)

..... More than 70 dB at 1 kHz

Recording bias frequency

..... 105 kHz

Signal-to-noise ratio (Recording/playback with metal tape)

DOLBY NR OFF Better than 54 dB

DOLBY NR ON Better than 64 dB
(above 5 kHz)

Others

Power voltage 120/220/240V (50/60 Hz)
For U.S.A. & Canada .. 120V (60 Hz)

Power consumption 250 watts 330 VA Rated

Dimensions 380 mm (15") W
222 mm (8-3/4") H
301 mm (11-7/8") D

Weight 9.9 kg (21.8 lbs) net
11.0 kg (24.3 lbs) packed

to be continued ►



SANSUI ELECTRIC CO., LTD.

CAUTION

•DA-E70

Amplifier section

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz, with no more than 0.5% total harmonic distortion.

50 watts per channel into 8 ohms.

Load impedance..... 8 ohms

Total harmonic distortion

..... less than 0.5% at or
below rated min. RMS
power output

Frequency response (at 1 watt)

Overall (from VIDEO S./AUX)

..... 10 to 50,000 Hz,
+1 dB, -4 dB

Input sensitivity and impedance (at 1 kHz)

VIDEO S./AUX..... 150 mV/47 kohms

Signal to noise ratio (short-circuit, A-network)

VIDEO S./AUX..... Better than 90 dB

Equalizer frequency

..... 100 Hz, 330 Hz, 1 kHz,

3.3 kHz, 10 kHz

Level variation range... ± 10 dB

Cassette deck section

Track format..... 4-track/2-channel system

Tape speed..... 4.8 cm/sec

Heads

Rec/play head..... HIGH-Bs hard permalloy

Play head..... HIGH-Bs hard permalloy

Erase head..... Double-gap HIGH-Bs ferrite

Motor

..... Electronically controlled DC

motor $\times 2$ (2 speed)

Reels: DC Motor $\times 2$

Wow/flutter

..... 0.06% max (WRMS)

Fast forwarding (rewinding) time

..... Approx. 100 sec.

(for C-60 tape)

Frequency response (-20 VU recording/playback)

Normal tape (LH)..... 20 to 15,000 Hz

(30 to 14,000 Hz ± 3 dB)

Chrome tape..... 20 to 16,000 Hz

(30 to 15,000 Hz ± 3 dB)

Metal tape..... 20 to 16,000 Hz

(30 to 15,000 Hz ± 3 dB)

Erasure rate (metal tape)

..... More than 70 dB at 1 kHz

Recording bias frequency

..... 105 kHz

Signal-to-noise ratio (Recording/playback with metal tape)

DOLBY NR OFF..... Better than 54 dB

DOLBY NR ON..... Better than 64 dB

(above 5 kHz)

Others

Power voltage..... 120/220/240V (50/60 Hz)

220/240V (50/60 Hz)

Power consumption..... 170 watts Rated

370 watts Maximum

Dimensions..... 380 mm (15") W

222 mm (8-3/4") H

301 mm (11-7/8") D

Weight..... 8.1 kg (17.9 lbs) net

9.4 kg (20.7 lbs) packed

- * Design and specifications subject to changes without notice for improvements.
- * Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors
- * Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double D symbol are trade marks of Dolby Laboratories Licensing Corporation.

1. The symbols, UL, CSA, SA, BS, UK, EU, AS, SEV, XX <EXPORT> and XX-V <EXPORT(V)> on the parts list and the schematic diagram mean followings respectively.

UL..... Manufactured for U.S.A market.
(Underwriters Laboratories approved model.)

CSA..... Manufactured for Canadian market.

SA..... Manufactured for South African market.

BS, UK..... Manufactured for United Kingdom market.

EU..... Manufactured for European market.

AS..... Manufactured for Australian market.

SEV..... Manufactured for Swiss market.

XX..... Standard Version with Inner Voltage
<EXPORT> Selector.

XX-V..... Standard Version with Outer Voltage
<EXPORT(V)> Selector.

NON MARK..... Common Parts.

2. Some printed circuit boards are not supplied as the assembled.

To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.

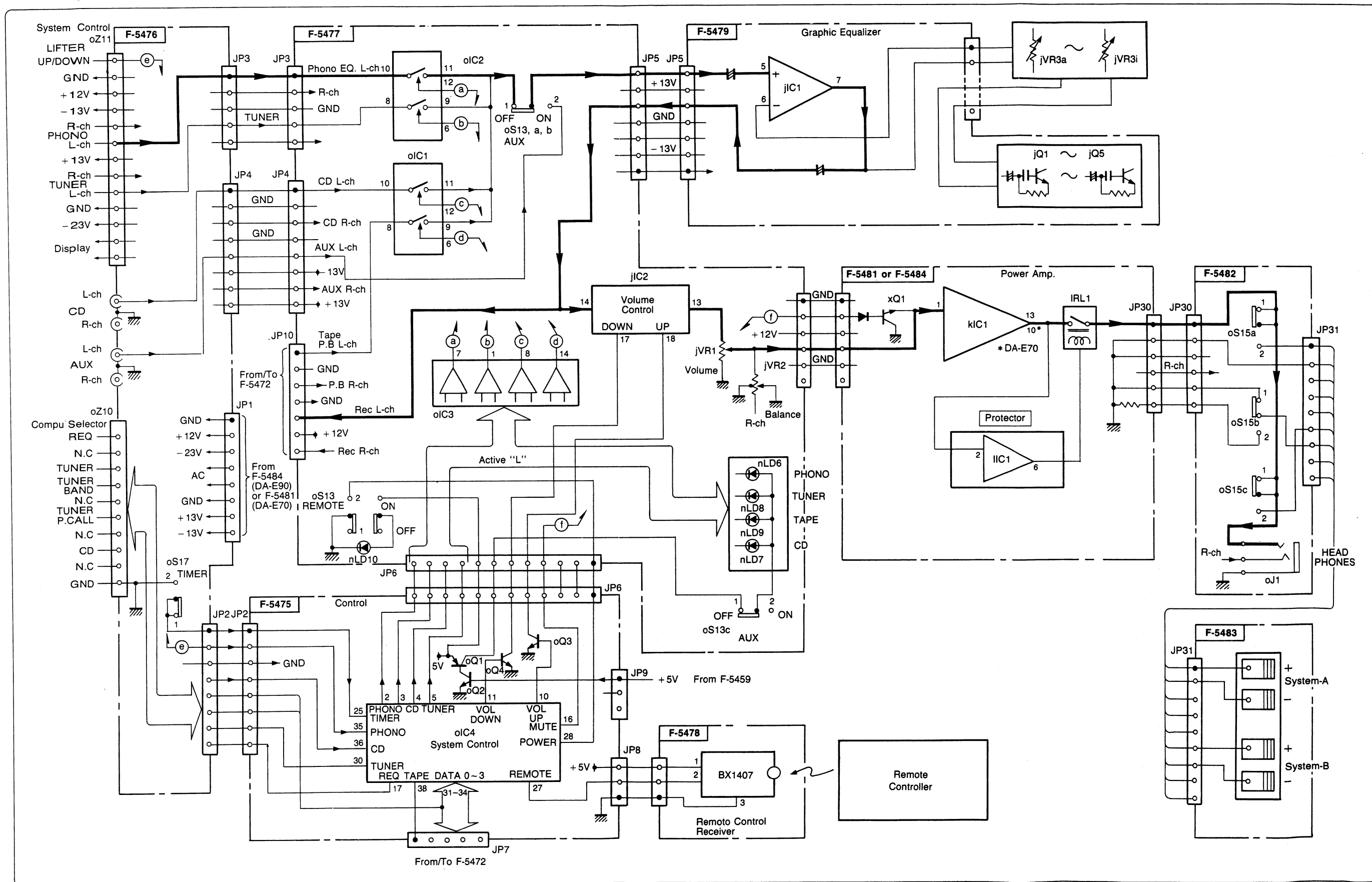
3. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.

4. Abbreviations in this service manual are as follows.

•Abbreviations List

C.R.	: Carbon Resistor
S.R.	: Solid Resistor
Ce.R.	: Cement Resistor
M.R.	: Metal Film Resistor
F.R.	: Fusing Resistor
N.I.R.	: Non-inflammable Resistor
A.R.	: Array Resistor
C.C.	: Ceramic Capacitor
C.T.	: Ceramic Capacitor, Temperature Compensation
E.C.	: Electrolytic Capacitor
E.L.	: Low Leak Electrolytic Capacitor
E.B.	: Bi-Polar Electrolytic Capacitor
E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
Ta.C.	: Tantalum Capacitor
F.C.	: Film Capacitor
M.P.	: Metalized Paper Capacitor
P.C.	: Polystyrene Capacitor
G.C.	: Gimmic Capacitor
A.C.	: Array Capacitor
V.R.	: Variable Resistor
S.V.R.	: Semi Variable Resistor
SW.	: Switch
Chip R.	: Chip Resistor
Chip C.	: Chip Capacitor

1-2. Audio Amp. Section



2. ADJUSTMENTS

2-1. Tape Speed Adjustment

- Adjust the tape speed of b-side as fast as a-side.
- Note:** 1. Use Sansui Test Tape, SCT-S3K.
(3 kHz signals are recorded on the tape).
2. Connections are shown in Fig. 2-1.

Fig. 2-1

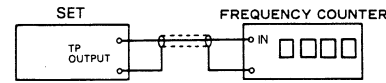
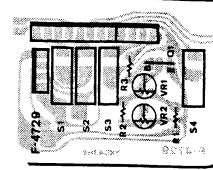


Fig. 2-2 <F-4729>



1) Tape Speed (NORMAL SPEED)

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1.	a-Side Mecha. (NORMAL)	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472.	Playback the TEST TAPE SCT-S3K. a-Side Mecha.	Turn semi-variable resistor (tVR1) of a-Side Mecha. as Fig. 2-2.	3000Hz ± 30 Hz -0	
2.	b-Side Mecha. (NORMAL)	Frequency Counter See Fig. 2-6.	Playback the TEST TAPE SCT-S3K. b-Side Mecha.	Turn semi-variable resistor (tVR1) of b-Side Mecha. as Fig. 2-2.	3000Hz ± 30 Hz -0	

2) Tape Speed (HIGH SPEED)

- Note:** 1. Before this adjustment, regulate "2-1. Tape Speed Adjustment (NORMAL SPEED)".
2. Short between the R3 on F-4729 & GND. (See Fig. 2-2)

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1.	a-Side Mecha. (HIGH)	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472.	Playback the TEST TAPE SCT-S3K. a-Side Mecha.	Turn semi-variable resistor (tVR2) of a-Side Mecha. as Fig. 2-2.	6000Hz ± 60 Hz -0	
2.	b-Side Mecha. (HIGH)	Frequency Counter See Fig. 2-6.	Playback the TEST TAPE SCT-S3K. b-Side Mecha.	Turn semi-variable resistor (tVR2) of b-Side Mecha. as Fig. 2-2.	6000Hz ± 60 Hz -0	

2-2. Playback Adjustment

- Note:** 1. Before this adjustment, clean REC/P.B. head surface.
2. For this adjustment, use Sansui Test Tape, SCT-F10K, and SCT-L400.
3. Set the Dolby NR switch to be OFF.
4. Connections are shown in Fig. 2-3.

Fig. 2-3

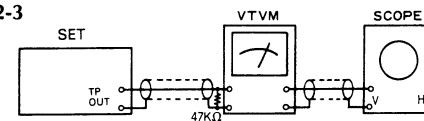
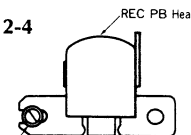


Fig. 2-4



1) a-Side Mecha.

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1.	REC/P.B. Head Adj.	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472. VTVM and SCOPE See Fig. 2-6.	Playback the TEST TAPE SCT-F10K	Adjust the azimuth adjusting screw in Fig. 2-4.	MAX. Output both channels	Refer to removal of Lid Ass'y on Page 22. After this adjustment, lock the screw with paint.
2.	Playback Level Pre Adj.	Between PointⒶ and Ⓑ <across the vR509 (L- and R-ch, F-5397)> VTVM and Scope	Playback the TEST TAPE SCT-L400	Adjust each vVR501 (L- and R-ch, F-5397)	10mV ± 2 dB	See F-5397 Parts location on Page 5.
3.	Playback Level Adj.	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472. VTVM and SCOPE See Fig. 2-6.	Playback the TEST TAPE SCT-L400	Adjust each xVR1 (L- and R-ch, F-5472). See Parts Location F-5472.	580mV ± 2 dB	See Top View on Page 18 or 19.

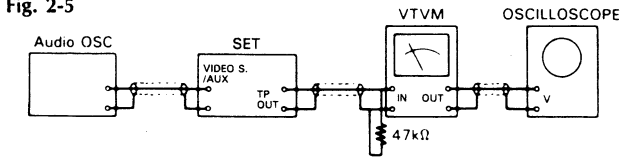
2) b-Side Mecha.

STEP	SUBJECT	MEASURE OUTPUT	SETTING	ADJUSTMENT	ADJUST FOR	REMARKS
1.	REC/P.B. Head Adj.	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472. VTVM and SCOPE See Fig. 2-6.	Playback the TEST TAPE SCT-F10K	Adjust the azimuth adjusting screw in Fig. 2-4.	MAX. Output both channels	Refer to removal of Lid Ass'y on Page 22. After this adjustment, lock the screw with paint.
2.	Playback Level Adj.	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472. VTVM and SCOPE See Fig. 2-6.	Playback the TEST TAPE SCT-L400	Adjust each vVR1 (L- and R-ch, F-5124)	580mV ± 2 dB	See Top View on Page 18 or 19.

2-3. REC Level & Frequency Response Adjustment <b-Side Mecha. only>

- Note:** 1. Connections are shown in Fig. 2-5.
2. Set the Dolby NR switch to OFF.
3. VIDEO S/AUX Switch ON
4. Short between TP terminal (PointⒸ and GND) on the F-5472. (See Fig. 2-6)

Fig. 2-5



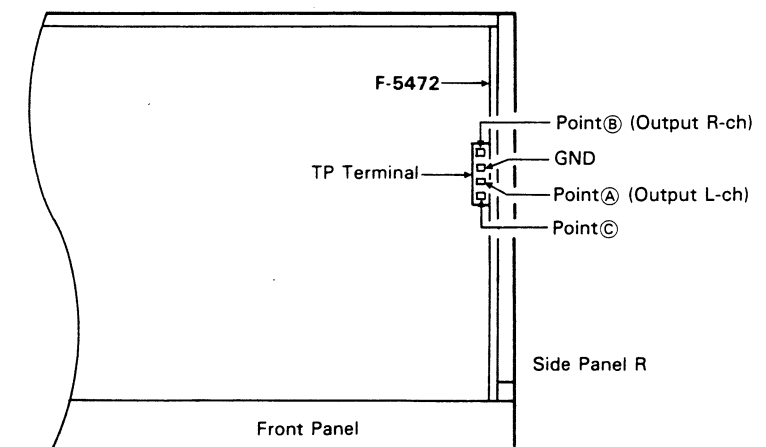
STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT	REMARKS
1.	REC Level Adj.	Feed 1kHz from Audio S.G. into VIDEO S/AUX Input	TP terminal, between PointⒶ (Output L-ch) or PointⒷ (Output R-ch) and GND on the F-5472. VTVM and SCOPE See Fig. 2-6.	Load the TEST TAPE SCT-SA. 1. Push the PAUSE, and REC knob. 2. Adjust the output level of Audio SG. for obtaining 200mV on VTVM. 3. Push the PAUSE knob, then record the 1kHz signal. 4. Playback the 1kHz signal. 5. Confirm that the output levels on both channels are 200mV ± 2 dB on VTVM.	1. If not turn vVR2 (REC, L-ch, F-5124) and vVR2 (REC, R-ch, F-5124) until output level 200mV ± 2 dB on both channels are obtained.	vVR2 (REC, L-ch) and vVR2 (REC, R-ch) are shown in Top View on Page 18 or 19.
2.	Frequency Response Adj.	Feed 1kHz 10mV and 10kHz 10mV, from Audio S.G. into LINE IN.	Same as above	Load the TEST TAPE SCT-SA. 1. Record the 1kHz and 10kHz signals. 2. Playback the 1kHz and 10kHz signals, then confirm that both output levels equal.	1. If not, adjust vVR50 (F-5124) for L-ch and vVR50 (F-5124) for R-ch slightly until the output levels will be equal.	
3.	METAL REC Level Adj.	Feed 1kHz from Audio S.G. into VIDEO S/AUX Input	Same as above	Load the TEST TAPE SCT-MA. 1. Push the PAUSE, and REC knob. 2. Adjust the output level of Audio SG. for obtaining 200mV on VTVM. 3. Push the PAUSE knob, then record the 1kHz signal. 4. Playback the 1kHz signal. 5. Confirm that the output levels on both channels are 200mV ± 2 dB on VTVM.	1. If not turn vVR3 (METAL, L-ch, F-5124) and vVR3 (METAL, R-ch, F-5124) until output level 200mV ± 2 dB on both channels are obtained.	vVR3 (METAL, L-ch) and vVR3 (METAL, R-ch) are shown in Top View on page 18 or 19.

◆ List of Sansui Test Tape

Name of TEST TAPE	Recorded Frequency	Description	Equivalent To
SCT-F40	40 Hz	Playback Frequency Response Check	—
SCT-F1K	1 kHz	High Frequency Equalization Check	—
SCT-F10K	10 kHz	REC/PB Head Adjustment	—
SCT-L400N	400 Hz	Playback Level and Indicator Level Adjustment	—
SCT-S3K	3 kHz	Speed Check and Wow & Flutter Check	—
*SCT-AD (NORMAL)	—	Recording Bias Adjustment	TDK AD
*SCT-SA (HIGH)	—	REC/PB Level Adjustment	TDK SA
*SCT-MA (METAL)	—	Frequency Response Check	TDK MA

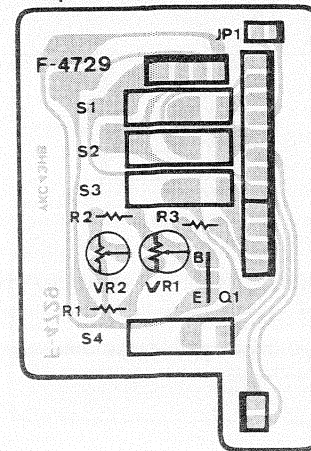
- Note:** Some reference tapes marked * are not supplied.
As these are equivalent to ones indicated above, please obtain these blank tapes on your side as possible.

Fig. 2-6

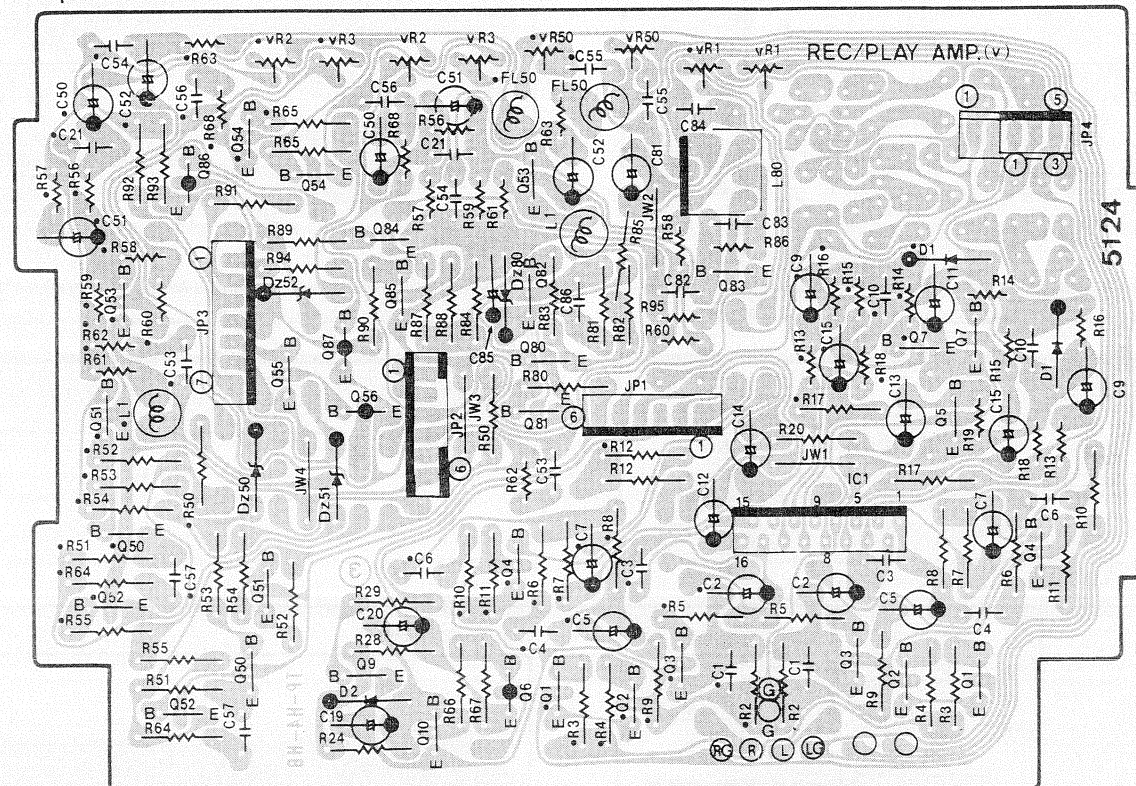


3. PARTS LOCATION ON BOARD

3-1. F-4729 Speed Control Board
Component Side

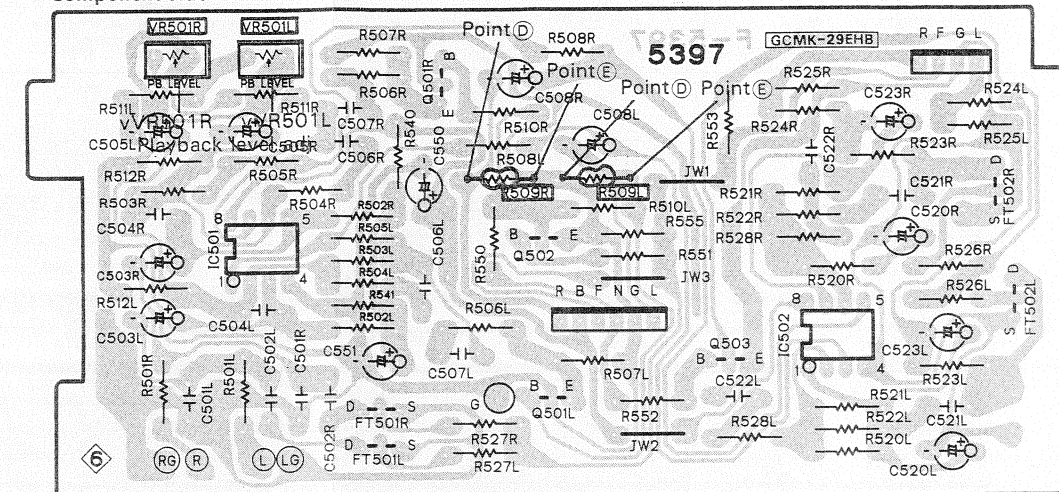


3-2. F-5124 b-side Cassette Recording/Playback Amp. Board
Component Side



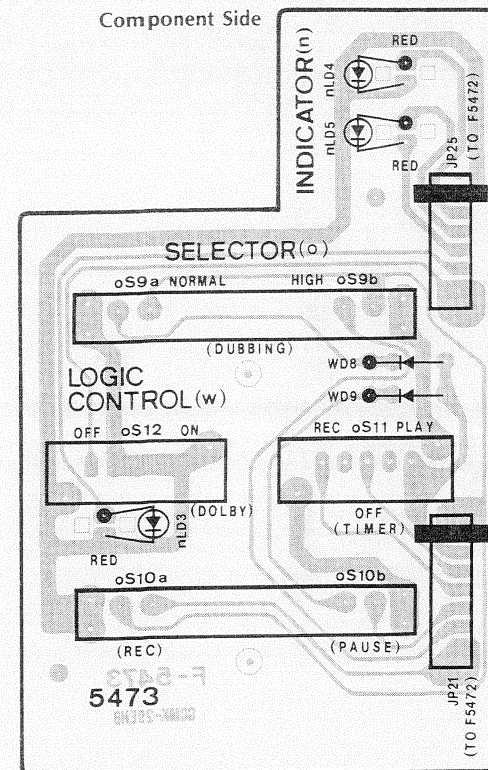
•Note: On this circuit board, the right channel is specified by "●" mark on top of the parts number.

3-3. F-5397 a-side Cassette Playback Amp. Board
Component Side

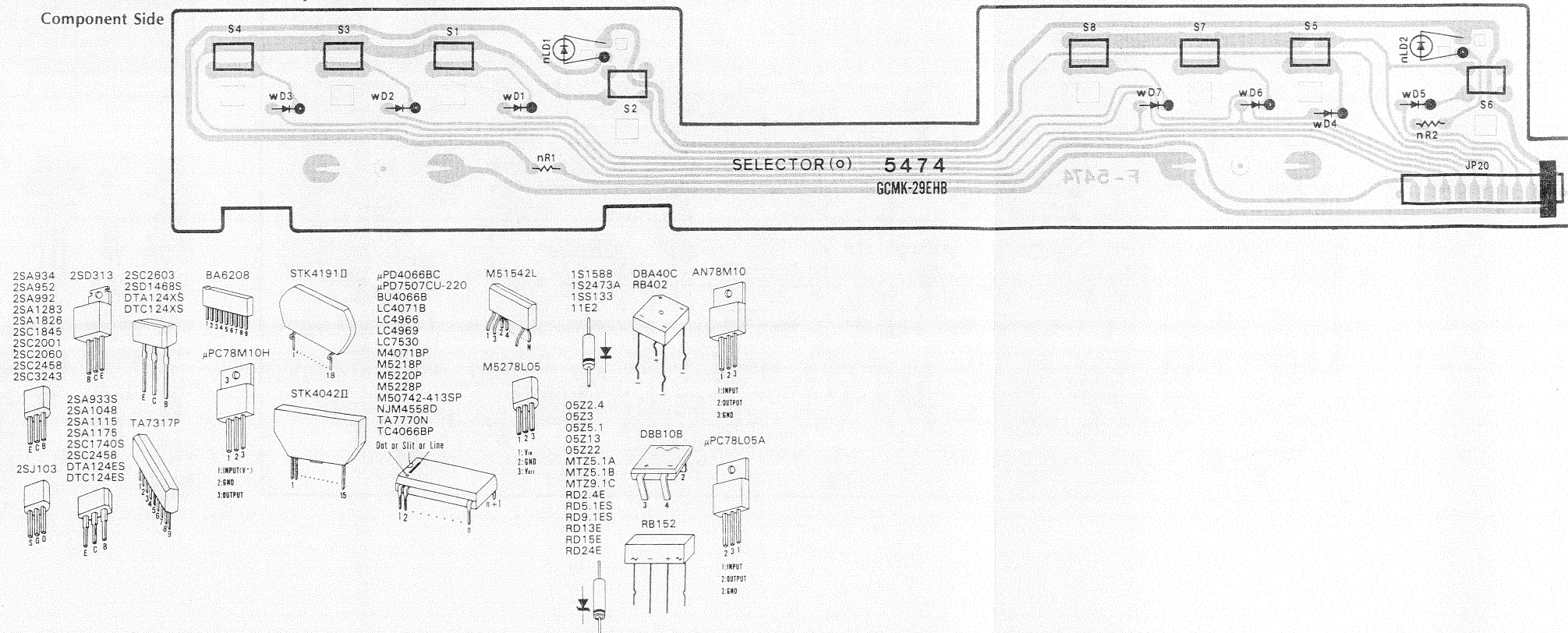


•Note: On this circuit board, the right channel is specified by "●" mark on top of the parts number.

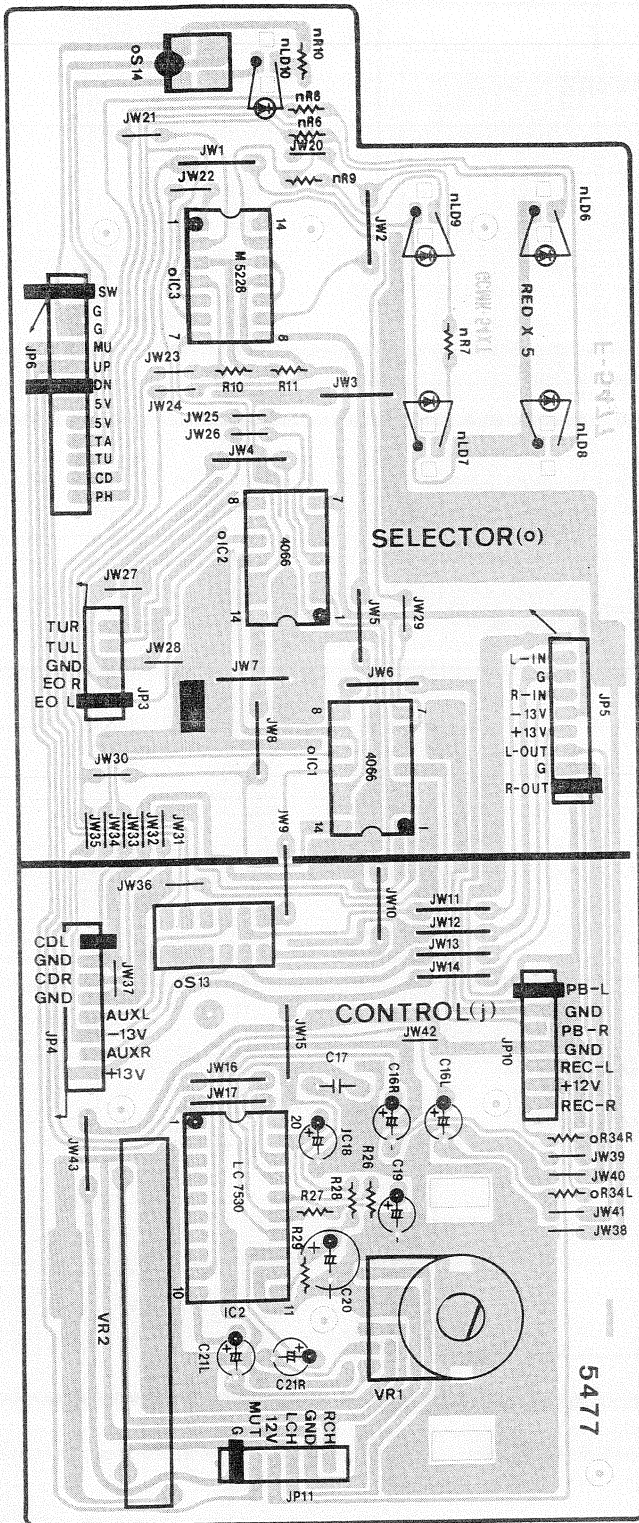
3-4. F-5473 DUBBING & TIMER Switch Board
Component Side



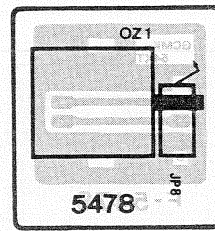
3-5. F-5474 Cassette Deck Operation Switch Board
Component Side



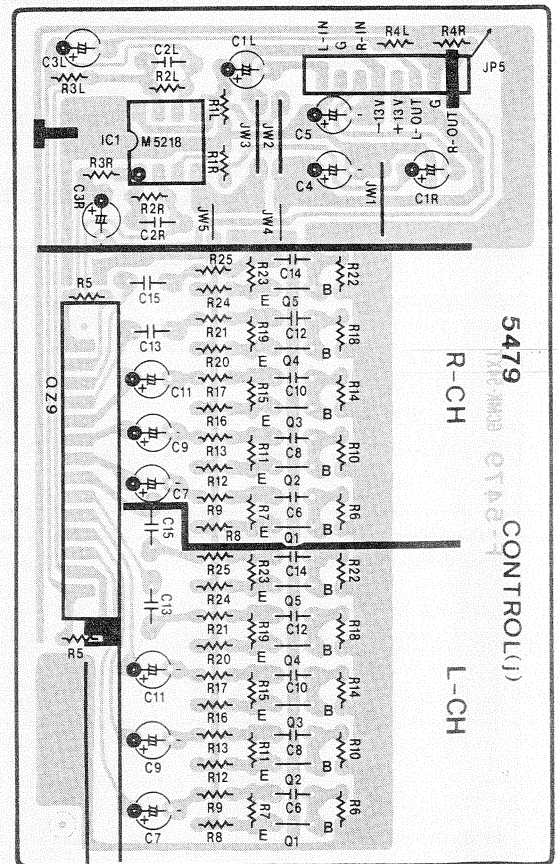
3-9. F-5477 Signal Selector & Electric Volume Board
Component Side



3-10. F-5478 Remote Control Receiver Board
Component Side

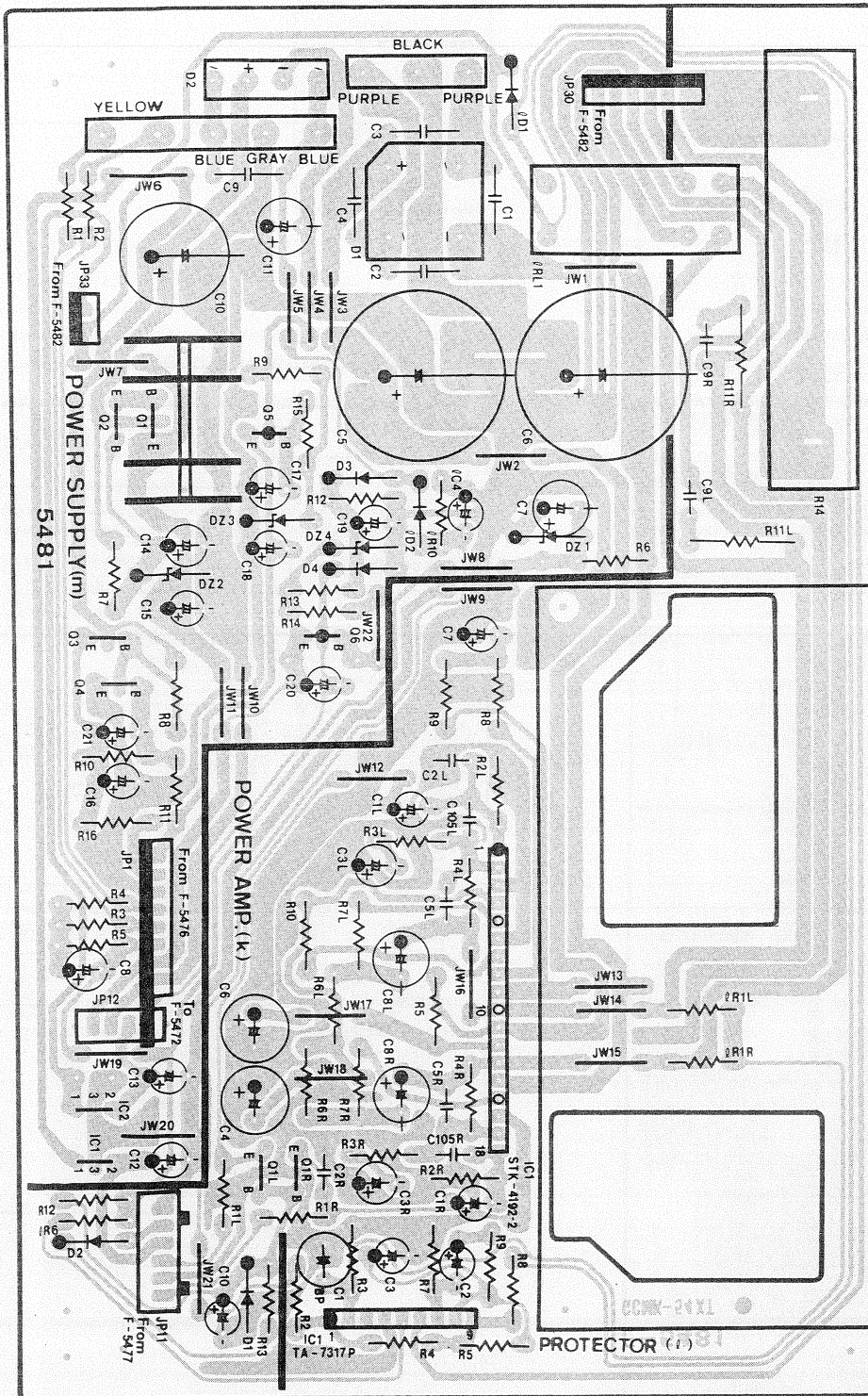


3-11. F-5479 Graphic Equalizer Board
Component Side



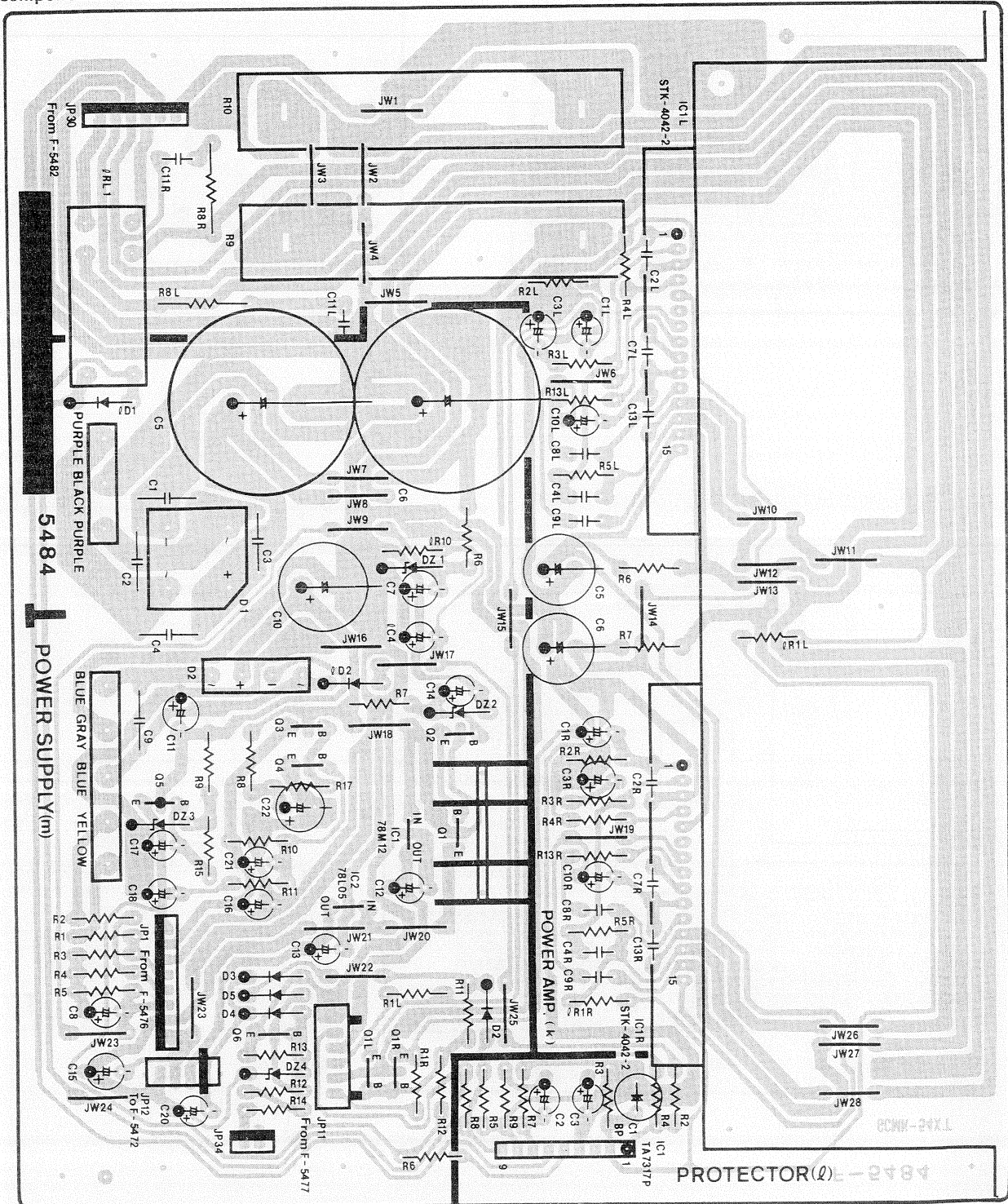
3-12. F-5481 Power Amp. & Power Supply Board <DA-E70>

Component Side



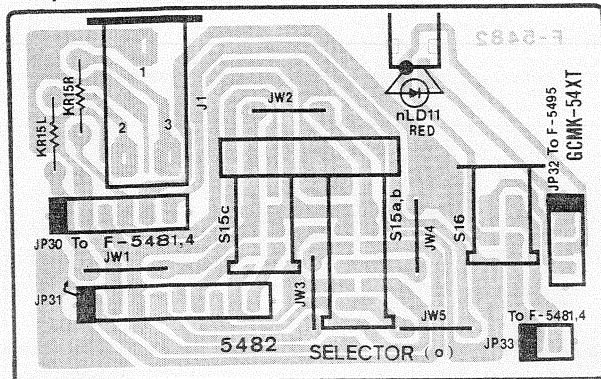
- | | | |
|---------------------------|----------|----------|
| 2SA934 | 2SD313 | 2SC2603 |
| 2SA952 | | 2SD1468S |
| 2SA992 | | DTA124XS |
| 2SA1283 | | DTC124XS |
| 2SA1826 | | |
| 2SC1845 | | |
| 2SC2001 | | |
| 2SC2060 | | |
| 2SC2458 | | |
| 2SC3243 | | |
| 2SA933S | 2SA1048 | 2SA1115 |
| 2SA1175 | 2SC1740S | 2SC2458 |
| DTA124ES | DTC124ES | |
| 2SJ103 | | |
| BA6208 | | |
| μPC78M10H | | |
| 1: INPUT(V ₁) | | |
| 2: GND | | |
| 3: OUTPUT | | |
| μPD4066BC | M51542L | |
| μPD7507CU-220 | | |
| BU4066B | | |
| LC4071B | | |
| LC4966 | | |
| LC4969 | | |
| LC7530 | | |
| M4071BP | | |
| M5218P | | |
| M5220P | | |
| M5228P | | |
| M50742-413SP | | |
| NJM4558D | | |
| TA7770N | | |
| TC4066BP | | |
| Dot or Slit or Line | | |
| 1: V _{cc} | | |
| 2: GND | | |
| 3: V _{out} | | |
| 1S1588 | DBA40C | AN78M10 |
| 1S2473A | RB402 | |
| 1S133 | | |
| 11E2 | | |
| 0622.4 | | |
| 0623 | | |
| 0625.1 | | |
| 06213 | | |
| 06222 | | |
| MT25.1A | | |
| MT25.1B | | |
| MT29.1C | | |
| RD2.4E | | |
| RD5.1ES | | |
| RD9.1ES | | |
| RD13E | | |
| RD15E | | |
| RD24E | | |
| 0622.4 | | |
| 0623 | | |
| 0625.1 | | |
| 06213 | | |
| 06222 | | |
| MT25.1A | | |
| MT25.1B | | |
| MT29.1C | | |
| RD2.4E | | |
| RD5.1ES | | |
| RD9.1ES | | |
| RD13E | | |
| RD15E | | |
| RD24E | | |

3-13. F-5484 Power Amp. & Power Supply Board <DA-E90> Component Side



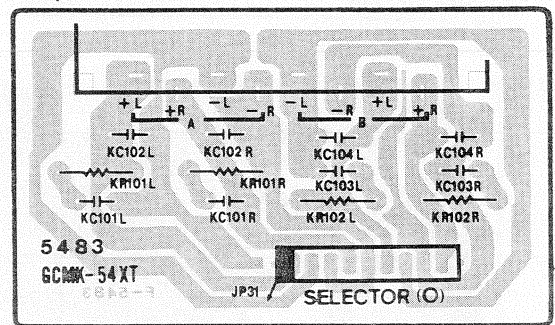
3-14. F-5482 SPEAKERS Switch Board

Component Side



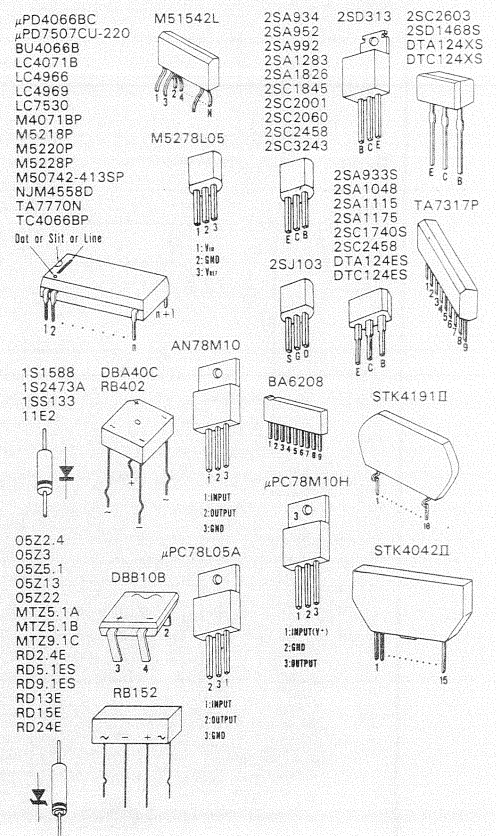
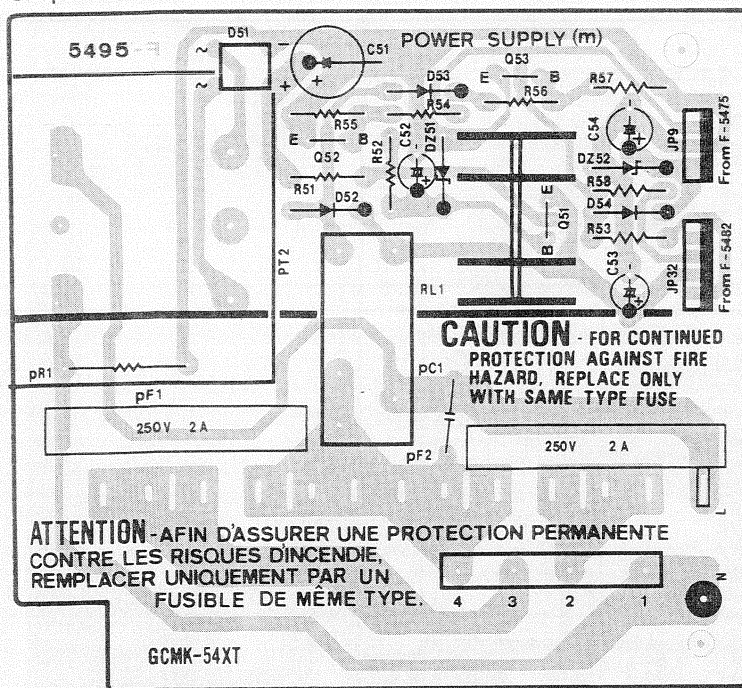
3-15. F-5483 Speaker Terminal Board

Component Side



3-16. F-5495 Power Stand-By Transformer Board

Component Side



4. PARTS LIST OF BOARD

4-1. F-4729 Speed Control Board

Parts No.	Stock No.	Description
•Transistor tQ1	07206901	2SC2001
•Diode tD1	03111600	1S2473D
tVR1	46839500	4.7k Ω S.V.R., Normal Speed
tVR2	46839600	10k Ω S.V.R., High Speed

Parts No.	Stock No.	Description
tS1	47292710	Leaf SW., half sensor
tS2	47292710	Leaf SW., prevention tab sensor <b-side Mechanism>
tS3	47292710	Leaf SW., HIGH
tS4	47292710	Leaf SW., METAL <b-side Mechanism>

4-2. F-5124 b-side Cassette Recording/Playback Amp. Board (Stock No. 00998201)

Parts No.	Stock No.	Description
•Transistor		
vQ1	46581701	2SC1845
vQ2	46581701	2SC1845
vQ3	46359801	2SC2001
or 48055901		2SD1468S
vQ4	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ5	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ6	46581601	2SA992
vQ7	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ9	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ10	46719900	DTC124ES
vQ50	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ51	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ52	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ53	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ54	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ55	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ56	46719800	DTA124ES
vQ80	46614101	2SC3243
vQ81	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ82	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ83	46614101	2SC3243
vQ84	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S

Parts No.	Stock No.	Description
vQ85	46367101	2SC2603
or 46367301		2SC2458
or 48058801		2SC1740S
vQ86	46367001	2SA1115
or 46392001		2SA1175
or 48058601		2SA933S
vQ87	46367001	2SA1115
or 46392001		2SA1175
or 48058601		2SA933S
•IC		
vIC1	48365900	M51542L
•Diode		
vD1	03117600	1S2473T77
or 46086000		1S1588TP-3
vD2	03117600	1S2473T77
or 46086000		1S1588TP-3
•Zener Diode		
vDZ50	46111100	05Z5.1-X
or 46111200		05Z5.1-Y
or 46111300		05Z5.1-Z
vDZ51	46111100	05Z5.1-X
or 46111200		05Z5.1-Y
or 46111300		05Z5.1-Z
vDZ52	46111100	05Z5.1-X
or 46111200		05Z5.1-Y
or 46111300		05Z5.1-Z
vDZ80	46108800	05Z2.4-X
or 46822800		RD2.4E-B
vR85	46681300	10 Ω 1/4W F.R.
vC53	46695500	0.013 μ F 50V F.C.
vC55	48663000	220pF 50V C.C.
vC81	46929100	100 μ F 16V E.C.
vC84	46656400	2200pF 100V F.C.
vFL50	48363500	Trap Coil
vL1	46090500	Inductor 2.7mH
vL80	48525100	OSC Coil OF-10
vVR1	48078800	2.2k Ω S.V.R., P.B level adj.
vVR2	48079600	47k Ω S.V.R., Rec level adj.
vVR3	48079600	47k Ω S.V.R., Metal rec level adj.
vVR50	48079800	100k Ω S.V.R., Bias level adj.

4-3. F-5397 a-side Cassette Playback Amp. Board (Stock No. 00997401)

Parts No.	Stock No.	Description
•Transistor		
vQ501	46367101	2SC2603
	or 48058801	2SC1740S
vQ502	46367101	2SC2603
	or 48058801	2SC1740S
•FET		
vFT501	46643800	2SJ103-Y
	or 46643801	2SJ103-GR
•IC		
vIC501	46638700	M5220P
vVR501	48078300	330Ω S.V.R., P.B level adj.

4-4. F-5473 DUBBING & TIMER Switch Board

Parts No.	Stock No.	Description
•LED		
nLD3	46176900	TLS-123, NORMAL SPEED
	or 46470200	SEL2210S
	or 48189000	GL3HD8
nLD4	46176900	TLS-123, HIGH SPEED
	or 46470200	SEL2210S
	or 48189000	GL3HD8
nLD5	46176900	TLS-123, REC
	or 46470200	SEL2210S
	or 48189000	GL3HD8
oS9	48524600	Push SW., DUBBING
oS10	48524600	Push SW., REC•PAUSE
oS11	48158200	Slide SW., TIMER
oS12	48158200	Slide SW., DOLBY NR
•Diode		
wD8	03111800	1S1588
	or 07176400	1S2473HS
wD9	03111800	1S1588
	or 07176400	1S2473HS

4-5. F-5474 Cassette Deck Operation Switch Board

Parts No.	Stock No.	Description
•LED		
nLD1	07250900	TLG-123A, a-play
	or 46470300	SEL2410E
nLD2	07250900	TLG-123A, b-play
	or 46470300	SEL2410E
oS1	46708100	Push SW., ■ (Stop)
oS2	46708100	Push SW., ► (Play)
oS3	46708100	Push SW., ►► (F.F)
oS4	46708100	Push SW., ◄◄ (REW)
oS5	46708100	Push SW., ■ (Stop)
oS6	46708100	Push SW., ► (Play)
oS7	46708100	Push SW., ►► (F.F)
oS8	46708100	Push SW., ◄◄ (REW)

a-side

b-side

Parts List <F-5474>

Parts No.	Stock No.	Description
•Diode		
wD1	46464100	1SS133
wD2	46464100	1SS133
wD3	46464100	1SS133
wD4	46464100	1SS133
wD5	46464100	1SS133
wD6	46464100	1SS133
wD7	46464100	1SS133

4-6. F-5472 Cassette Mechanism Control & Noise Reduction Board (Stock No. 00996101)

Parts No.	Stock No.	Description
•Transistor		
vQ1	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ2	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ3	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ4	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ5	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ6	48229200	DTA124XS
vQ7	48230200	DTC124XS
vQ8	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ9	48230200	DTC124XS
vQ10	48230200	DTC124XS
vQ11	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ12	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ13	48230200	DTC124XS
vQ14	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ15	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ16	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ17	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ18	48229200	DTA124XS
vQ19	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ20	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
vQ21	48223100	DTC114TS

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Parts No.	Stock No.	Description
•IC		
vIC1	07224800	TC4066BP
	or 46421000	μ PD4066BC
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
vIC2	07224800	TC4066BP
	or 46421000	μ PD4066BC
	or 48054500	MSM4066BRS
	or 48063800	BU4066B
•Diode		
vD1	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD2	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD3	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD4	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD5	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD6	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD7	03117600	1S2473T77
	or 46086000	1S1588TP-3
vD8	03117600	1S2473T77
	or 46086000	1S1588TP-3
•Zener Diode		
vDZ1	48553900	MTZ9.1BT-77
	or 48554000	MTZ9.1CT-77
	or 48633200	RD9.1B2 ES
	or 48633300	RD9.1B3 ES
vDZ2	48552000	MTZ5.1AT-77
	or 48552100	MTZ5.1BT-77
	or 48630700	RD5.1B1 ES
	or 48630800	RD5.1B2 ES
vL1	48507300	Inductor
•Transistor		
wQ1	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
wQ2	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
wQ3	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
wQ4	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ5	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
wQ6	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
wQ7	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ8	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ9	46614101	2SC3243
wQ10	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ11	46614101	2SC3243
wQ12	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S

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Parts No.	Stock No.	Description
wQ13	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ14	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
wQ15	46359801	2SC2001
	or 48000901	2SC2060
wQ16	46359801	2SC2001
	or 48000901	2SC2060
wQ17	46359701	2SA952
	or 48000801	2SA934
wQ18	48229200	DTA124XS
wQ19	48230200	DTC124XS
wQ20	48230200	DTC124XS
wQ21	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
•IC		
wIC1	48316510	M50742-413SP
wIC2	46178500	LC4071B
	or 46632700	M4071BP
	or 48050800	MSM4071BRS
wIC3	46671300	LC4969
wIC4	46149600	BA6208
wIC5	46149600	BA6208
wXO1	48241600	Ceramic OSC Element KBR 4.0MS
•Diode		
wD10	03117600	1S2473T77
	or 46086000	1S1588TP-3
wD11	46464100	1SS133
wD12	46464100	1SS133
wD13	46464100	1SS133
wD14	03117600	1S2473T77
	or 46086000	1S1588TP-3
wD15	03117600	1S2473T77
	or 46086000	1S1588TP-3
wD16	46464100	1SS133
wD17	03117600	1S2473T77
	or 46086000	1S1588TP-3
wD18	48123600	11E2
wD19	48123600	11E2
Δ wR13	46248500	22 Ω 1W N.I.R.
Δ wR18	46248500	22 Ω 1W N.I.R.
Δ wR32	46624100	68 Ω 2W N.I.R.
Δ wR33	46624100	68 Ω 2W N.I.R.
wR35	48339900	4.7k Ω X8 A.R.
wR36	48339900	4.7k Ω X8 A.R.
wR37	48339800	4.7k Ω X6 A.R.
wR38	48519200	100k Ω X4 A.R.
•Transistor		
xQ1	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
xQ2	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
xQ3	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
•IC		
xIC1	48519800	TA7770N
xFL1	48668300	Dolby Filter
xVR1	48078600	1k Ω S.V.R., output level adj.
	or 48278200	1k Ω (B) S.V.R., output level adj.

4-7. F-5475 System Control IC Board

(Stock No. 01006701 = DA-E90/Stock No. 00996401 = DA-E70)

Parts No.	Stock No.	Description
•Transistor		
oQ1	48229200	DTA124XS
oQ2	48223100	DTC114TS
oQ3	48223100	DTC114TS
oQ4	48223100	DTC114TS
oQ5	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
(DA-E90)		
•Diode		
oD1	46464100	1SS133 (DA-E70)
•IC		
oIC4	48316710	μPD7507CU-220
oXO1	48339400	Quartz Crystal KF38G

4-8. F-5476 Input Terminal Board

Parts No.	Stock No.	Description
oS17	46670600	Push SW., EXT. TIMER SET
oZ2	48528500	4P Terminal, CD•AUX
qZ10	48313900	10P ST Socket, compu selector
qZ11	48519900	13P ST Socket, system control

4-9. F-5477 Signal Selector & Electric Volume Board
(Stock No. 01006401 = DA-E90/Stock No. 00996601 = DA-E70)

Parts No.	Stock No.	Description
•Transistor		
jQ6	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA933S
(DA-E90)		
•IC		
jIC2	46671600	LC7530
•Diode		
jD1	46464100	1SS133
jVR1	48139800	150kΩ (B) V.R., VOLUME
jVR2	48524700	250kΩ V.R., BALANCE
•LED		
nLD6	46176900	TLS-123, PHONO
	or 46470200	SEL2210S
	or 48189000	GL3HD8
nLD7	46176900	TLS-123, CD
	or 46470200	SEL2210S
	or 48189000	GL3HD8
nLD8	46176900	TLS-123, TUNER
	or 46470200	SEL2210S
	or 48189000	GL3HD8
nLD9	46176900	TLS-123, TAPE
	or 46470200	SEL2210S
	or 48189000	GL3HD8

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Parts No.	Stock No.	Description
nLD10	46176900	TLS-123, REMOTE CONTROL
	or 46470200	SEL2210S
	or 48189000	GL3HD8
•IC		
oIC1	48056800	LC4966
oIC2	48056800	LC4966
oIC3	48348300	M5228P
oS13	48319100	Push SW., VIDEO/AUX
oS14	48313700	Push SW., REMOTE CONTROL

4-10. F-5478 Remote Control Receiver Board

Parts No.	Stock No.	Description
oZ1	48525000	BX1407 Remote Control Receiver

4-11. F-5479 Graphic Equalizer Board

(Stock No. 01006601 = DA-E90/Stock No. 00996801 = DA-E70)

Parts No.	Stock No.	Description
•Transistor		
jQ1	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
jQ2	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
jQ3	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
jQ4	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
jQ5	46367101	2SC2603
	or 46367301	2SC2458
	or 48058801	2SC1740S
•IC		
jIC1	07208900	NJM4558D-X
	or 46673800	M5218P

4-12. F-5481 Power Amp. & Powr Supply Board (Stock No. 00997001 = DA-E70)

Parts No.	Stock No.	Description
•Transistor kQ1	46367101 or 46367301 or 48058801	2SC2603 2SC2458 2SC1740S
•IC △kIC1	48062000	STK4191-II
•Diode kD1	03117600 or 46086000	1S2473T77 1S1588TP-3
kD2	03117600 or 46086000	1S2473T77 1S1588TP-3
△kR5	46229000	100Ω 1/2W N.I.R.
△kR6	46230600	2.2kΩ 1/2W N.I.R.
△kR7	46230600	2.2kΩ 1/2W N.I.R.
△kR8	46230200	1kΩ 1/2W N.I.R.
△kR9	46230200	1kΩ 1/2W N.I.R.
△kR10	46229000	100Ω 1/2W N.I.R.
△kR11	46247700	4.7Ω 1W N.I.R.
△kR14	48484800	12Ω 20W Ce.R.
kC9	46284100	0.1μF 50V F.C.
•IC △IIC1	46207600	TA7317P
•Diode ID1 ID2	48123600 03117600 or 46086000	11E2 1S2473T77 1S1588TP-3
IC1	48101500	100μF 6.3V E.B.
△IRL1 △	48524300 or 48524400	Relay Relay
•Transistor △mQ1 △ mQ2	03083901 or 48369801 46367101	2SD313HP 2SC1826 2SC2603
△mQ3 △ mQ4	or 46367301 03083901 or 48369801 46367101	2SC2458 2SD313HP 2SC1826 2SC2603
△mQ5 △ △ mQ6	or 46367301 46359701 or 46614001 or 48000801 07299701 or 46078801	2SC2458 2SA952 2SA1283 2SA934 2SC2603 2SC2458
•IC △mIC1 △ △mIC2 △	07232400 or 48565900 48065800 or 48469500	μPC78M10H AN78M10 M5278L05 μPC78L05A
•Diode △mD1 △ △mD2 mD3	46194700 or 48177400 03117000 03111600	RB402-LFF DBA40-C RB152-LFF 1S2473
mD4	or 03111800 03117600 or 46086000	1S1588 1S2473T77 1S1588TP-3
mD5	03111600 or 03111800	1S2473 1S1588

Parts No.	Stock No.	Description
•Zener Diode mDZ1	46115800 or 46829700	05Z22-Z RD24E-B1
mDZ2	46114100 or 46827800	05Z13-X RD13E-B2
mDZ3	46114300 or 46828000	05Z13-Z RD15E-B1
mDZ4	46099200 or 46099300	05Z3.0-Y 05Z3.0-Z
△mR6	46230600	2.2kΩ 1/2W N.I.R.
△mR7	46230100	820Ω 1/2W N.I.R.
△mR8	46229200	150Ω 1/2W N.I.R.
△mR9	46230100	820Ω 1/2W N.I.R.
mC1	08680400	0.01μF 500V C.C.
mC2	08680400	0.01μF 500V C.C.
mC3	08680400	0.01μF 500V C.C.
mC4	08680400	0.01μF 500V C.C.
mC5	46395200	4700μF 56V E.C.
mC6	46395200	4700μF 56V E.C.
mC9	08680400	0.01μF 500V C.C.

4-13. F-5484 Power Amp. & Power Supply Board
(Stock No. 01006801 = DA-E90)

Parts No.	Stock No.	Description
•Transistor kQ1	46367101 or 46367301 or 48058801	2SC2603 2SC2458 2SC1740S
•IC △kIC1	48583100	STK4042-II
•Diode kD1	03117600 or 46086000	1S2473T77 1S1588TP-3
kD2	03117600 or 46086000	1S2473T77 1S1588TP-3
△kR6	46229000	100Ω 1/2W N.I.R.
△kR7	46229000	100Ω 1/2W N.I.R.
△kR8	46247700	4.7Ω 1W N.I.R.
△kR9	48573500	5.6Ω 20W Ce.R.
△kR10	48573500	5.6Ω 20W Ce.R.
kC11	46284100	0.1μF 50V F.C.
•IC △IIC1	46207600	TA7317P
•Diode ID1 ID2	48123600 03117600 or 46086000	11E2 1S2473T77 1S1588TP-3
IC1	48101500	100μF 6.3V E.B.
△IRL1 △	48524300 or 48524400	Relay Relay
•Transistor △mQ1 △ mQ2	03083901 or 48369801 46367101 or 46367301	2SD313HP 2SC1826 2SC2603 2SC2458

to be continued ►

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Parts No.	Stock No.	Description
△mQ3	03083901	2SD313HP
△	or 48369801	2SC1826
mQ4	46367101	2SC2603
	or 46367301	2SC2458
△mQ5	46359701	2SA952
△	or 46614001	2SA1283
△	or 48000801	2SA934
mQ6	46367101	2SC2603
	or 46367301	2SC2458
•IC		
△mIC1	07232400	μPC78M10H
△	or 48565900	AN78M10
△mIC2	48065800	M5278L05
△	or 48469500	μPC78L05A
•Diode		
△mD1	46194700	RB402-LFF
△	or 48177400	DBA40-C
△mD2	03117000	RB152-LFF
mD3	03117600	1S2473T77
	or 46086000	1S1588TP-3
mD4	03117600	1S2473T77
	or 46086000	1S1588TP-3
mD5	03117600	1S2473T77
	or 46086000	1S1588TP-3
•Zener Diode		
mDZ1	46115800	05Z22-Z
	or 46829700	RD24E-B1
mDZ2	46114200	05Z13-Y
	or 46827900	RD13E-B3
mDZ3	46114300	05Z13-Z
	or 46828000	RD15E-B1
mDZ4	46109400	05Z3.0-Y
	or 46109500	05Z3.0-Z
△mR6	46230600	2.2kΩ 1/2W N.I.R.
△mR7	46230100	820Ω 1/2W N.I.R.
△mR8	46229200	150Ω 1/2W N.I.R.
△mR9	46230100	820Ω 1/2W N.I.R.
mC1	08680400	0.01μF 500V C.C.
mC2	08680400	0.01μF 500V C.C.
mC3	08680400	0.01μF 500V C.C.
mC4	08680400	0.01μF 500V C.C.
mC5	48273600	6800μF 80V E.C.
mC6	48273600	6800μF 80V E.C.
mC9	08680400	0.01μF 500V C.C.

4-14. F-5482 SPEAKERS Switch Board

Parts No.	Stock No.	Description
•LED		
nLD11	46176900	TLS-123, STAND-BY
	or 46470200	SEL2210S
	or 48189000	GL3HD8
△kR15	46229400	220Ω 1/2W N.I.R.
oS15	48524500	Push SW., SPEAKERS
oS16	48156600	Push SW., POWER STAND-BY
oJ1	46579600	Jack, PHONES

4-15. F-5483 Speaker Terminal Board

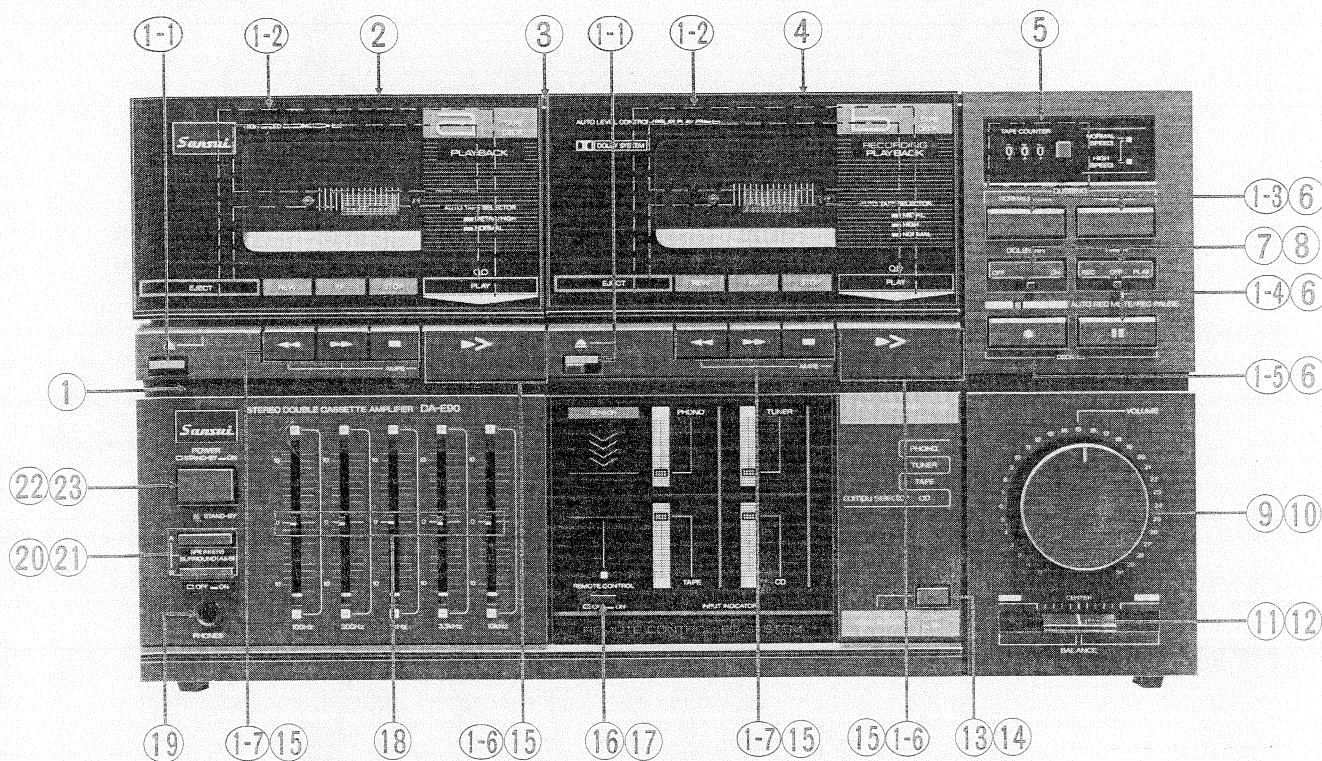
Parts No.	Stock No.	Description
oZ3	46947500	8P Terminal, SPEAKERS

4-16. F-5495 Power Stand-By Transformer Board
(Stock No. 01007101 = DA-E90/Stock No. 00997301 = DA-E70)

Parts No.	Stock No.	Description
•Transistor		
△mQ51	03083901	2SD313HP
△	or 48369801	2SC1826
mQ52	46367101	2SC2603
	or 46367301	2SC2458
mQ53	46367101	2SC2603
	or 46367301	2SC2458
•Diode		
△mD51	46273600	DBB10B
mD52	48123600	11E2
mD53	03117600	1S2473T77
	or 46086000	1S1588TP-3
•Zener Diode		
mDZ51	46114100	05Z13-X
	or 46827800	RD13E-B2
mDZ52	46111200	05Z5.1-Y
	or 46824700	RD5.1E-B2
△mRL1	48340200	Relay
△	or 48340300	Relay
△mR51	46227400	4.7Ω 1/2W N.I.R.
△mR53	46229400	220Ω 1/2W N.I.R.
△pC1	46425800	0.01μF 400V C.C.
△pF1	48266900	AC Fuse 2.5A 250V (XX-V) (DA-E90)
△	48267300	AC Fuse 5A 250V (UL) (DA-E90)
△	48721800	AC Fuse 5A 250V (CSA) (DA-E90)
△	48266800	AC Fuse 2A 250V (XX-V) (DA-E70)
△	07185000	AC Fuse 2A 250V (EU,UK,AS & SEV) (DA-E70)
△pF2	48266900	AC Fuse 2.5A 250V (XX-V) (DA-E90)
△	48266800	AC Fuse 2A 250V (XX-V) (DA-E70)
△	07184400	AC Fuse 0.5A 250V (SEV) (DA-E70)

5. OTHER PARTS

•DA-E90/E70 Front View

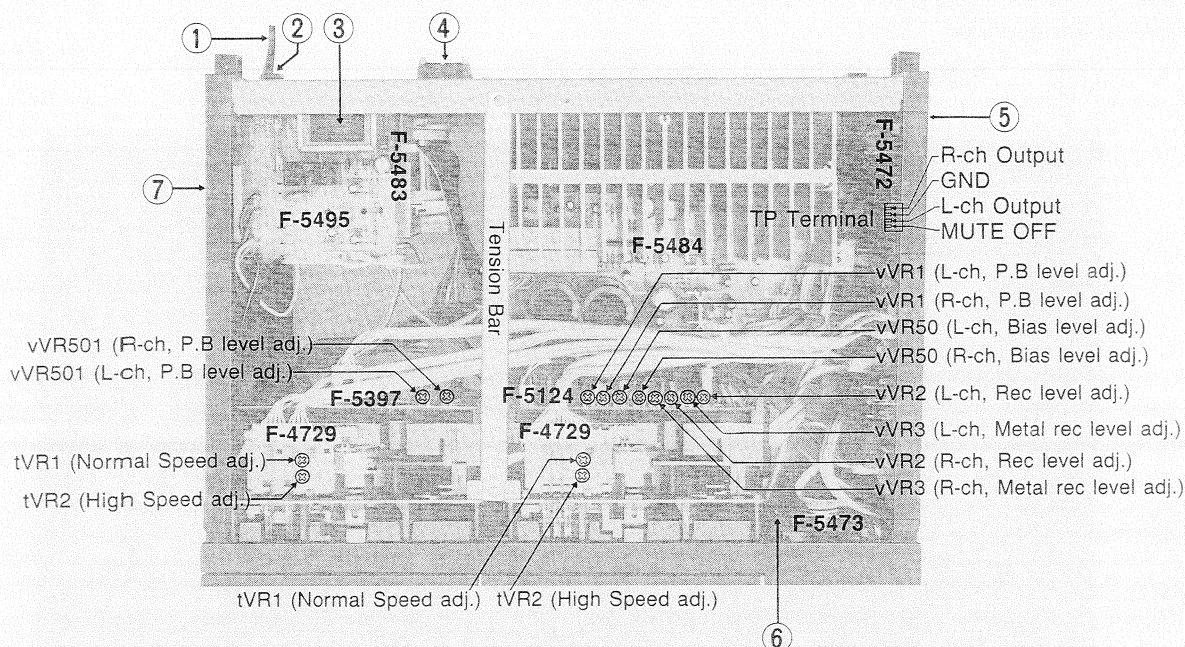


Parts List < DA-E90/E70 >

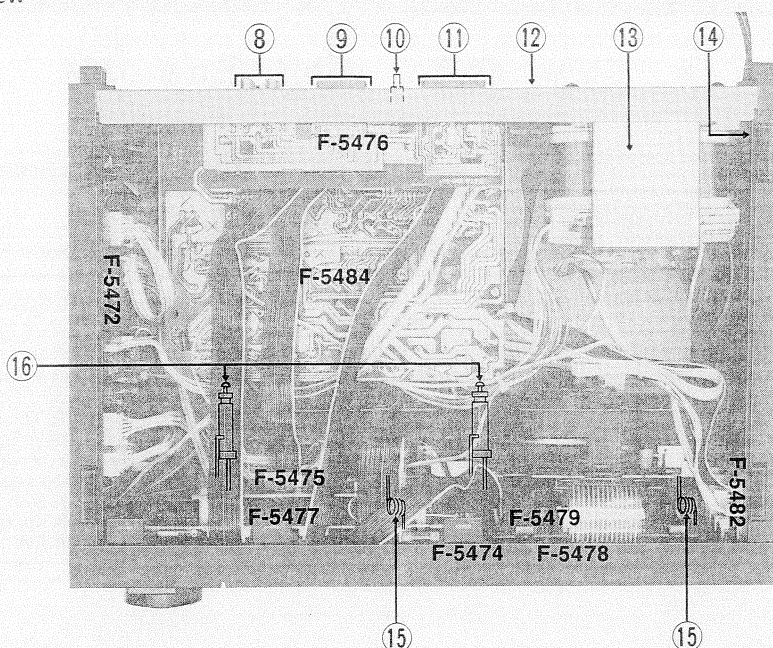
Parts No.	Stock No.	Description
1	27263800	Front Panel Ass'y (DA-E90)
	27233600	Front Panel Ass'y (DA-E70)
1-1	27233100	Eject Knob
1-2	27054000	Cassette Holder Ass'y
1-3	27232800	Tact Knob, DUBBING
1-4	27307800	PAUSE Knob
1-5	27307700	REC Knob
1-6		PLAY Button Ass'y
1-7		Button Ass'y, F.F•REW•STOP
2	27257910	Cassette Lid A Ass'y
3	27231500	Bonnet
4	27258010	Cassette Lid B Ass'y
5	48723400	Tape Counter
6	48524600	Push SW., DUBBING
7	48158200	Slide SW., TIMER•DOLBY NR
8	27232700	Slide Knob., TIMER•DOLBY NR
9	27084000	Knob, VOLUME

Parts No.	Stock No.	Description
10	48139800	150k Ω (B) V.R, VOLUME
11	27232600	Slide Knob, BALANCE
12	48524700	250k Ω V.R, BALANCE
13	27232500	Push Knob, VIDEO S/AUX
14	48319100	Push SW., VIDEO S/AUX
15	46708100	Push SW., PLAY•STOP•F.F•REW
16	27078400	Push Knob, REMOTE CONTROL
17	48313700	Push SW., REMOTE CONTROL
18	48571300	50k Ω Volume Ass'y (DA-E90), Graphic Equalizer
	48520500	50k Ω Volume Ass'y (DA-E70), Graphic Equalizer
19	46579600	Jack, PHONES
20	27234200	Push Knob, SPEAKERS
21	48524500	Push SW., SPEAKERS
22	27039800	Push Knob, POWER STAND-BY
23	48156600	Push SW., POWER STAND-BY

•DA-E90 Top View



•DA-E90 Bottom View

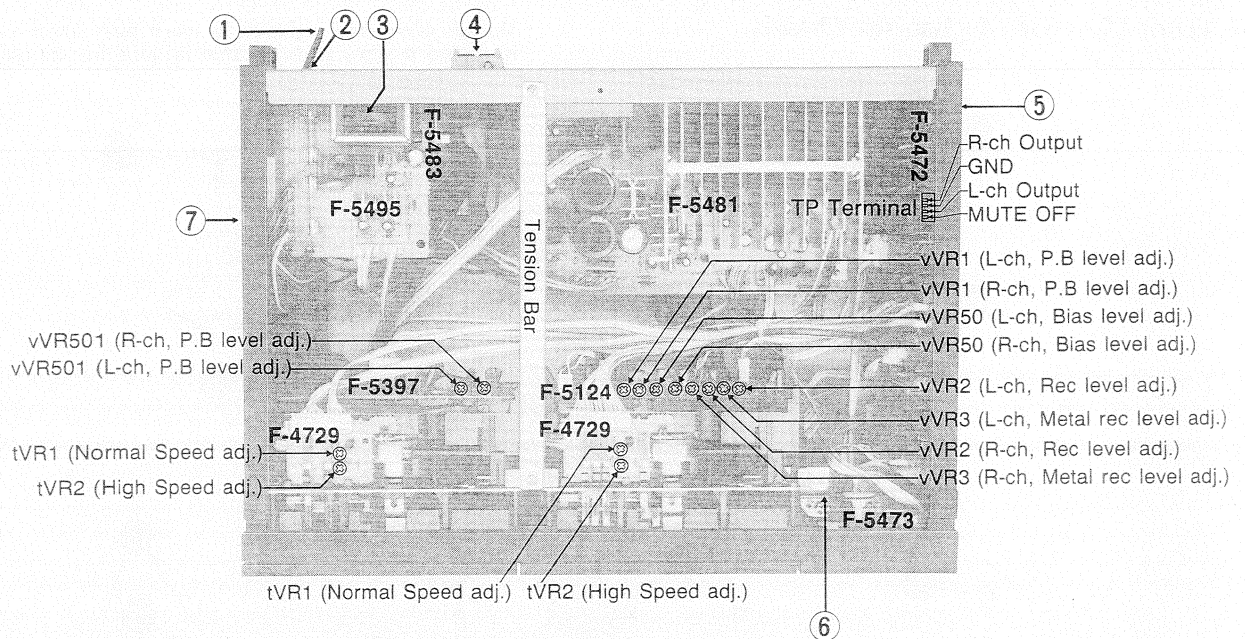


Parts List <DA-E90/Top View & Bottom View>

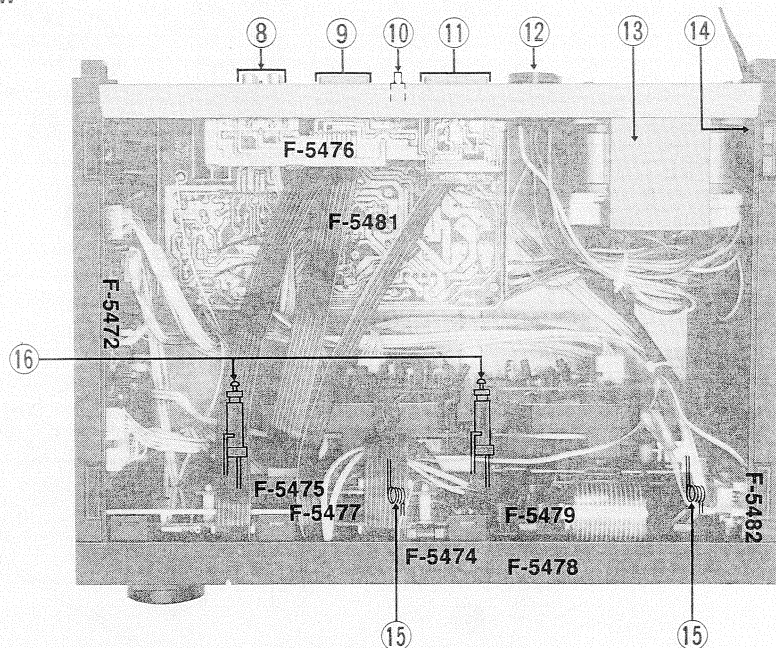
Parts No.	Stock No.	Description
△ 1	38004700	Power Supply Cord (XX-V)
△	48187500	Power Supply Cord (polarized) (XX-V)
△	48187800	Power Supply Cord (polarized) (UL & CSA)
△ 2	46364900	AC Outlet (XX-V)
△	48184000	AC Outlet (polarized) (XX-V, UL & CSA)
△ 3	15026801	Power Transformer (Small) (XX-V)
△	15027302	Power Transformer (Small) (UL & CSA)
4	46947500	8P Speaker Terminal
5	27233500	Side Panel Ass'y (R)

Parts No.	Stock No.	Description
6	47171400	Tape Counter Belt
7	27233400	Side Panel Ass'y (L)
8	48528500	4P Terminal, CD-AUX
9	48313900	10P ST Socket, compu selector
10	46670600	Push SW., EXT. TIMER SET
11	48519900	13P ST Socket, system control
△ 12	48175200	Voltage Selector Plug, (XX-V)
△ 13	15027209	Power Transformer (XX-V)
△	15027202	Power Transformer (UL & CSA)
14	47390300	AC Cord Cover
15	47673000	Eject Spring
16	27257500	Damper Ass'y

•DA-E70 Top View



•DA-E70 Bottom View



Parts List <DA-E70/Top View & Bottom View>

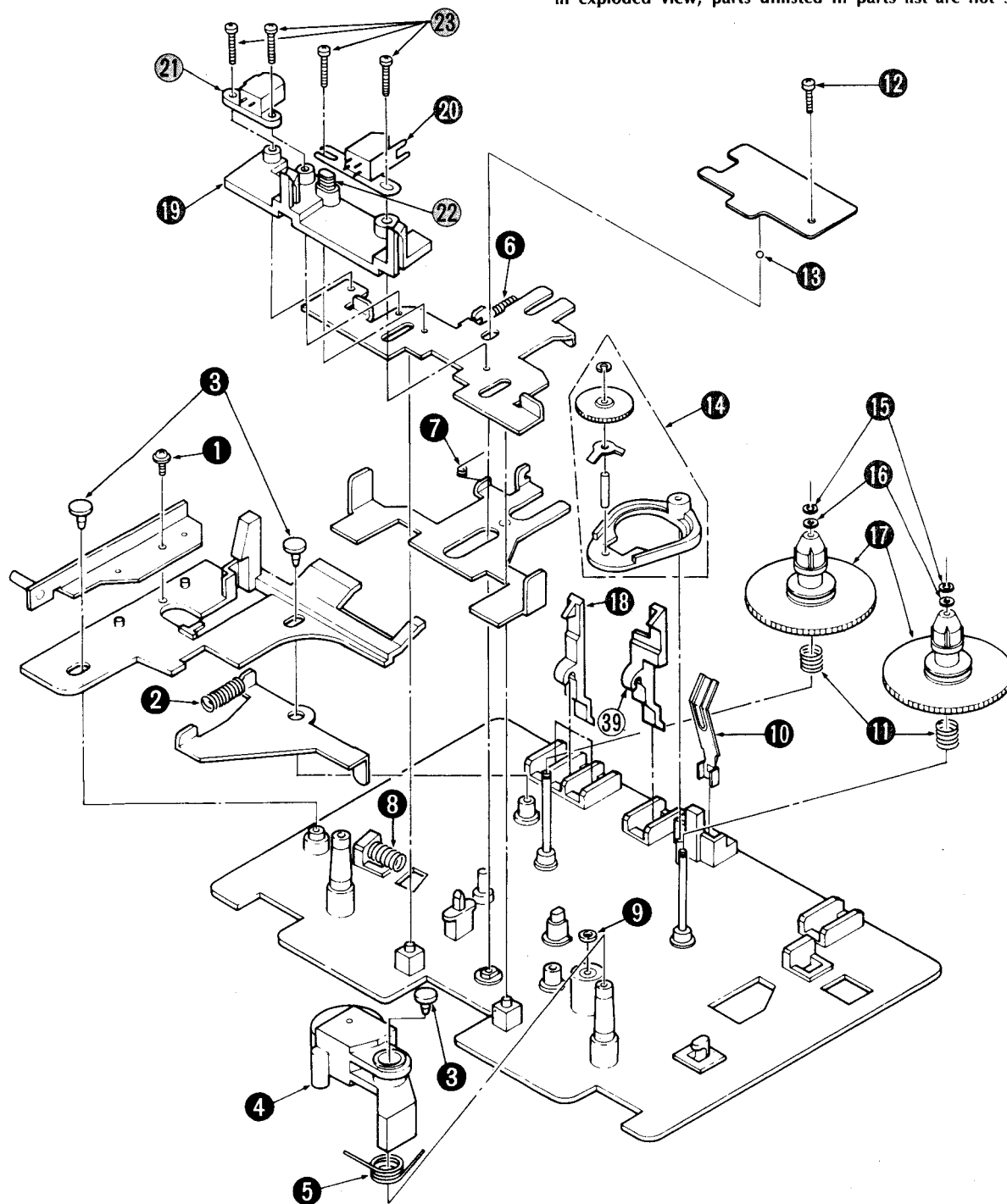
Parts No.	Stock No.	Description
△ 1	38004700	Power Supply Cord (XX-V)
△	48187500	Power Supply Cord (polarized) (XX-V)
△	38004500	Power Supply Cord (EU & SEV)
△	38004300	Power Supply Cord (UK)
△	07204200	Power Supply Cord (AS)
△ 2	46364900	AC Outlet (XX-V)
△	48184000	AC Outlet (polarized) (XX-V)
△	46161000	AC Outlet (EU & SEV)
△	46364800	AC Outlet (UK)
△	46580600	AC Outlet (AS)
△ 3	15026801	Power Transformer (Small) (XX-V)
△	15026805	Power Transformer (Small) (EU, UK, AS & SEV)
4	46947500	8P Speaker Terminal
5	27233500	Side Panel Ass'y (R)

Parts No.	Stock No.	Description
6	47171400	Tape Counter Belt
7	27233400	Side Panel Ass'y (L)
8	48528500	4P Terminal, CD-AUX
9	48313900	10P ST Socket, compu selector
10	46670600	Push SW., EXT. TIMER SET
11	48519900	13P ST Socket, system control
△ 12	48175200	Voltage Selector Plug (XX-V)
△	07204700	Slide SW., voltage selector (EU, UK, AS & SEV)
△ 13	15026709	Power Transformer (XX-V)
	15026705	Power Transformer (EU, UK, AS & SEV)
14	47390300	AC Cord Cover
15	47673000	Eject Spring
16	27257500	Damper Ass'y

6. EXPLODED VIEW OF MECHANISM ASS'Y & PARTS LIST

6-1. Front View of Mechanism Chassis

• Though every part included in mechanism ass'y is numbered in exploded view, parts unlisted in parts list are not supplied.

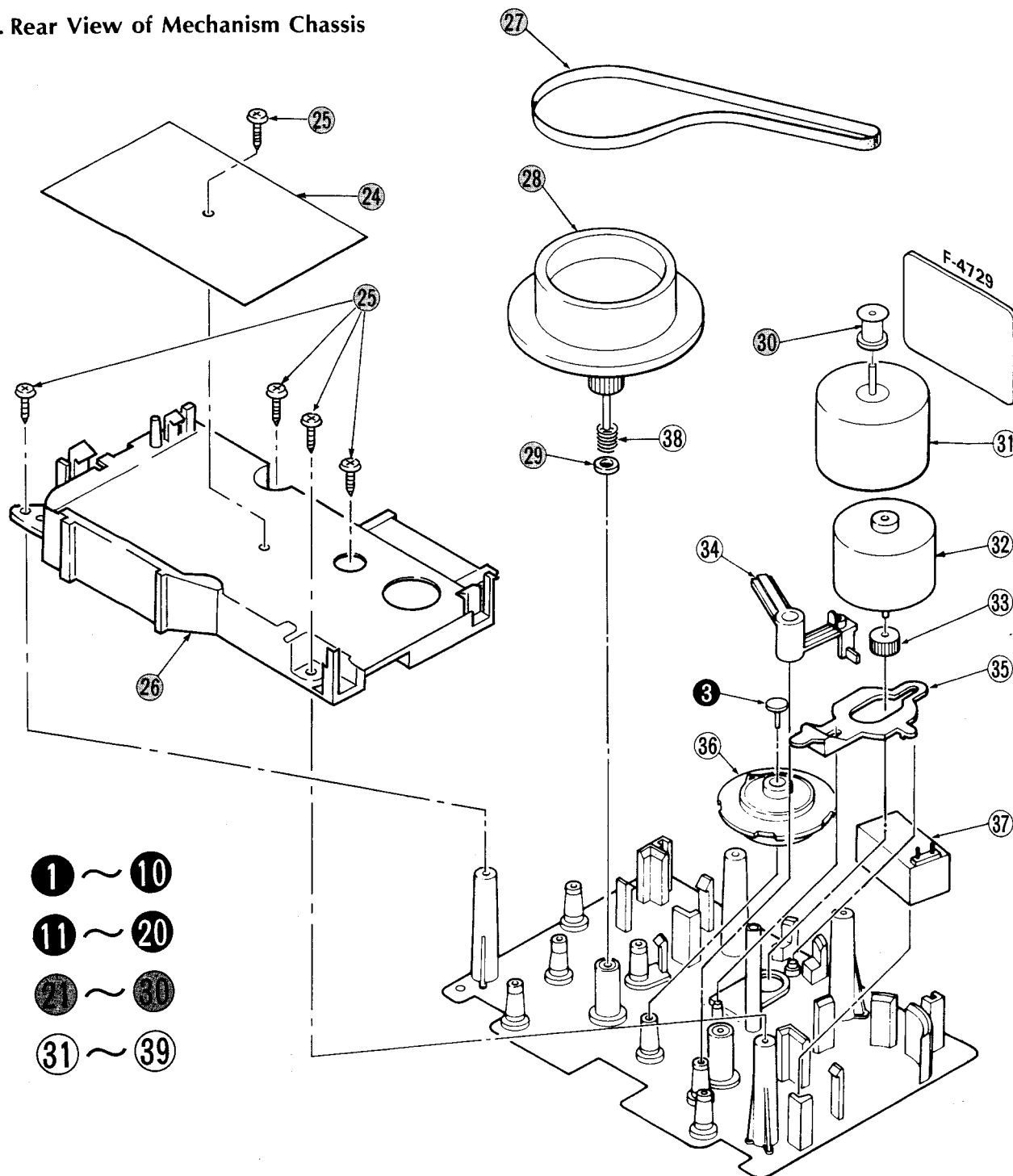


Parts List

Parts No.	Stock No.	Description
1	46267800	Tapping Screw, M3.0X8
2	47644500	Spring, eject
3	47420900	Plastic Tack
4	47281810	Pinch Roller Ass'y
5	47483100	Spring, pinch roller
6	47406200	Spring, head base
7	47405600	Spring, slide base
8	47668600	Spring, plunger solenoid
9	47404700	Washer, d=2.5
10	47293510	Spring, half

Parts No.	Stock No.	Description
11	47709620	Spring, reel
12	18139300	Tapping Screw, M2X12
13	47404900	Steel Ball, $\phi 2.0$
14	47405000	Arm Ass'y
15	27083100	Washer, d=1.6
16	47497100	Washer, d=2.0
17	47835510	Reel Gear Ass'y
18	47723020	Sensor Arm (A)
19	47284110	Head Base
20	48001600	REC/PB Head

6-2. Rear View of Mechanism Chassis



Parts No.	Stock No.	Description
21	07997400	Erase Head (b-side)
22	46867800	Dummy Head (a-side)
23	47406100	Spring azimuth
24	00420900	Binding Head Screw, M2X12
25	46267800	Shield Plate
26	27218300	Pan Head Tapping Screw, M3X8
27	47405200	Sub Chassis
28	47405200	Belt
29	48399900	Flywheel Ass'y
30	47404600	Washer, d = 2.5

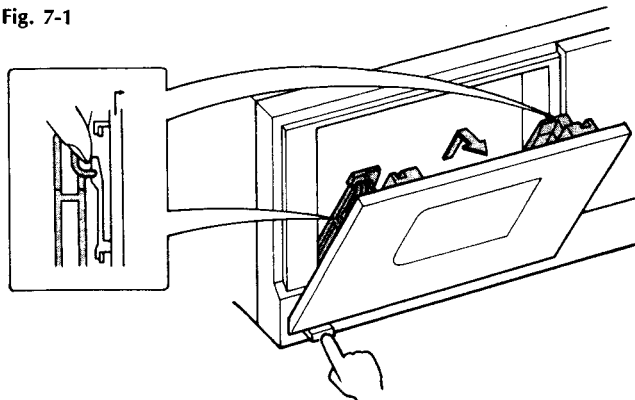
Parts No.	Stock No.	Description
31	47897100	Pulley
32	46737600	Capstan Motor
33	46737500	Reel Motor
34	47293110	Gear, reel motor
35	47281610	Lock Arm
36	47293810	Arm (B)
37	47283840	Assist Gear
38	47292610	Plunger Solenoid
39	47530000	Spring, flywheel
40	47292530	Sensor Arm (B)

7. MAIN PARTS REPLACEMENT

1. Cassette Lid Ass'y (See Fig. 7-1)

- 1) Depress the EJECT button to open the cassette lid ass'y.
- 2) Slide the cassette lid ass'y up to remove it.

Fig. 7-1



2. a-side Mechanism Ass'y (See Fig. 7-2)

- 1) Remove the bonnet, the bottom plate and the tension bar.
(See Top View on page 18 and 19.)
- 2) Pluck out one connector from F-4729 board.
- 3) Pluck out one connector from F-5397 board.
- 4) Remove the side panel L.
- 5) Remove the cassette lid ass'y of a-side.
- 6) Remove the eject spring.
- 7) Loosen the four screws ⑤a fixing the a-side mechanism ass'y and take out it.

3. b-side Mechanism Ass'y (See Fig. 7-2)

- 1) Remove the bonnet, the bottom plate and the tension bar.
(See Top View on page 18 and 19.)
- 2) Pluck out one connector from F-4729 board.
- 3) Pluck out four connectors from F-5124 board.
- 4) Remove the cassette lid ass'y of the b-side mechanism.
- 5) Remove the side panel R.
- 6) Remove the eject spring.
- 7) Take out the counter belt from the b-side mechanism.
- 8) Loosen the four screws ⑤b fixing b-side mechanism ass'y and take out it.

4. Dampener Ass'y (a-side mechanism) (See Fig. 7-2)

- 1) Remove the bonnet, the bottom plate and the tension bar.
(See Top View on page 18 and 19.)
- 2) Take out the a-side mechanism ass'y.
- 3) Remove the screw fixing the damper ass'y and remove it from the front panel ass'y.

5. Front Panel Ass'y (See Fig. 7-2)

- 1) Remove the bonnet, the bottom plate and the tension bar.
- 2) Remove the side panel L and R.
- 3) Take out the a-side and b-side mechanism ass'y.
- 4) Remove the tape counter from the front panel ass'y.
- 5) Remove the damper ass'y.
- 6) Take out the F-5473, F-5474, F-5475, F-5477, F-5478, F-5479 and F-5482.

6. Rec/PB Head ⑳

(See Exploded View of Mechanism Ass'y on page 19)

- 1) Remove the a- or b-side mechanism ass'y from set.
- 2) Unsolder head lead wires.
- 3) Loosen two screws ㉑.

7. Pinch Roller Ass'y ㉒

(See Exploded View of Mechanism Ass'y on page 19)

- 1) Remove the a- or b-side mechanism ass'y from set.
- 2) Pull out the lock pin ㉓.
- 3) Take out the pinchroller ass'y.

8. Reel Gear Ass'y ㉔

(See Exploded View of Mechanism Ass'y on page 19)

- 1) Remove the a- or b-side mechanism ass'y from set.
- 2) Take off two washers ㉕, ㉖ to pull out reel gear.

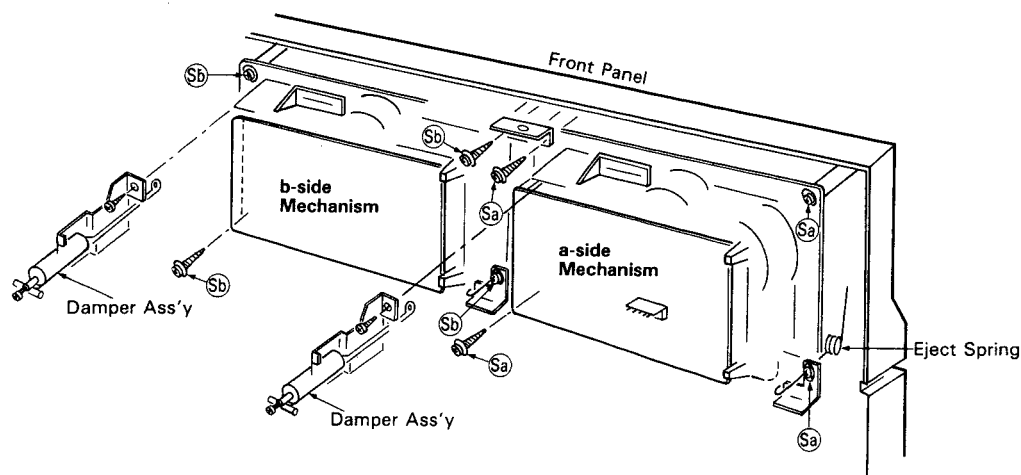
9. Capstan Motor ㉗, Reel Motor ㉘, Capstan Belt ㉙, Flywheels ㉚ or ㉛ and Plunger ㉜

(See Exploded View of Mechanism Ass'y on Page 19, 20)

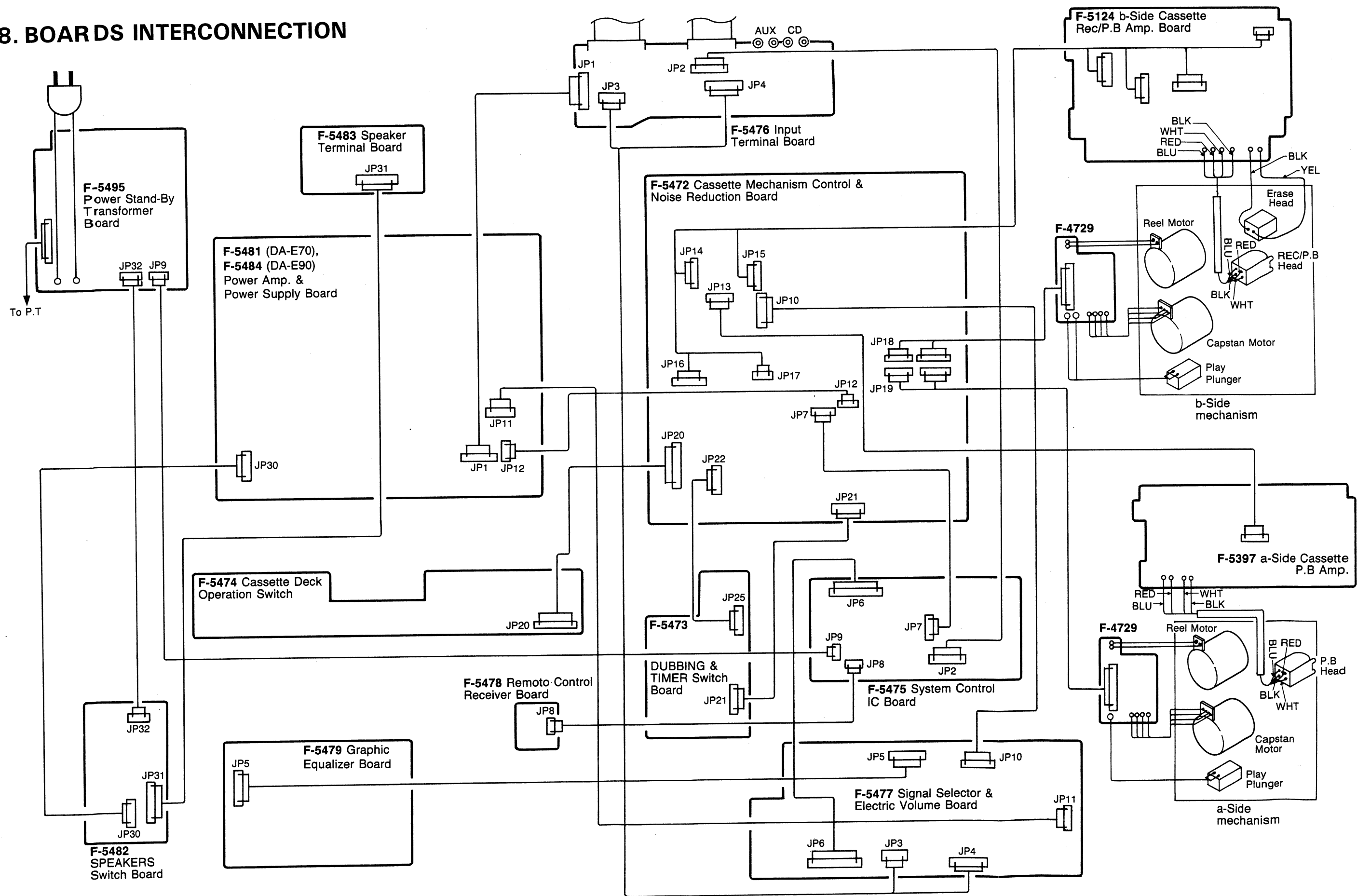
- 1) Remove a-side or b-side mechanism ass'y from set.
- 2) Remove the F-5397 board from a-side mechanism ass'y or the F-5124 board from b-side mechanism ass'y.
- 3) Remove the sub-chassis ㉞.

* When reassembling these removed parts, take the following precaution: Assembly the push (A) so that these parts are mutually positioned as shown in 2. OPERATIONS OF PINCH ROLLER. Unless positioned correctly, the mechanism ass'y may be operated erroneously. Remember that if the push arm (A) is positioned on the assist gear (A), the eject arm may be locked.

Fig. 7-2



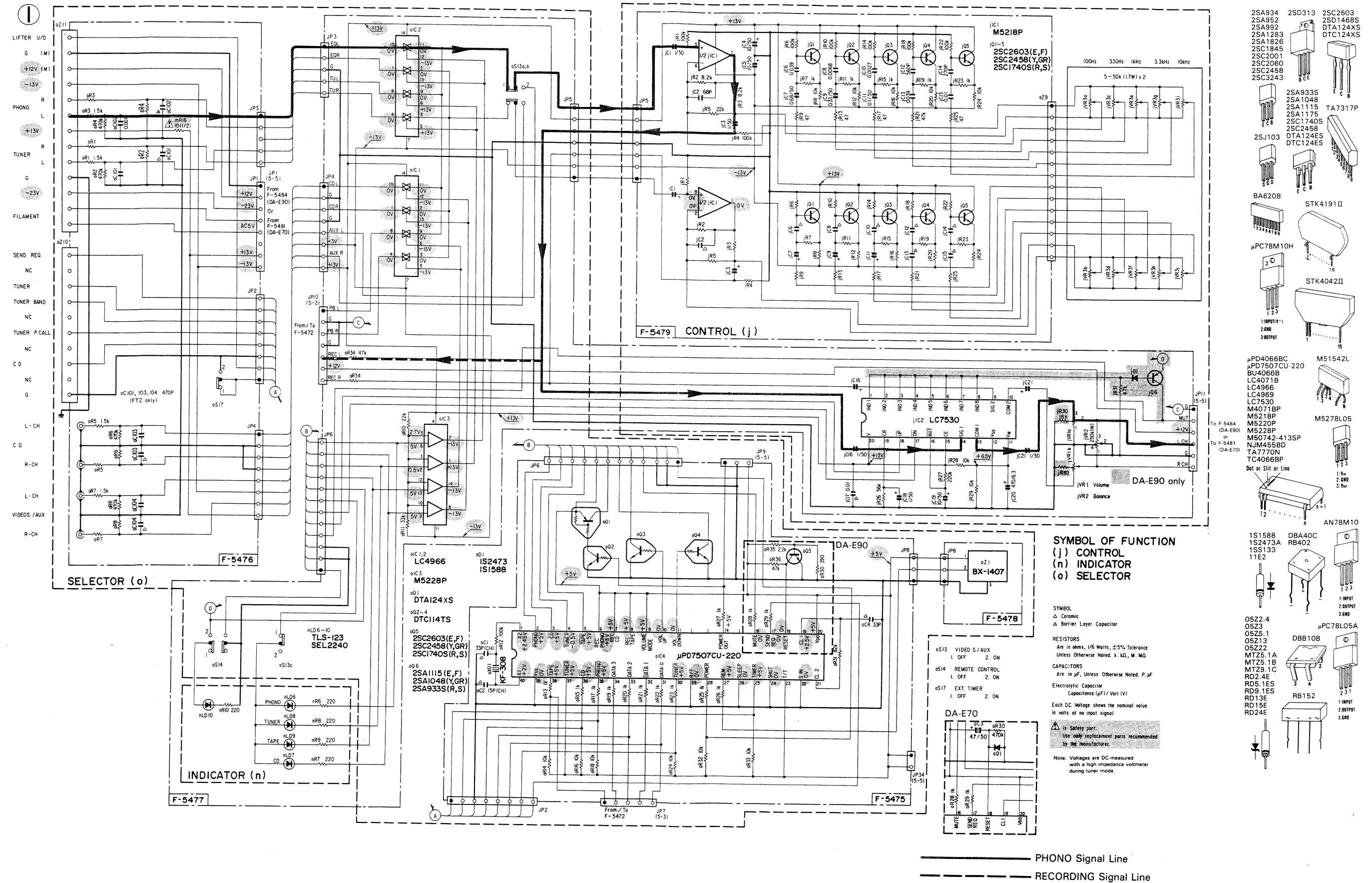
8. BOARDS INTERCONNECTION



9. SCHEMATIC DIAGRAM

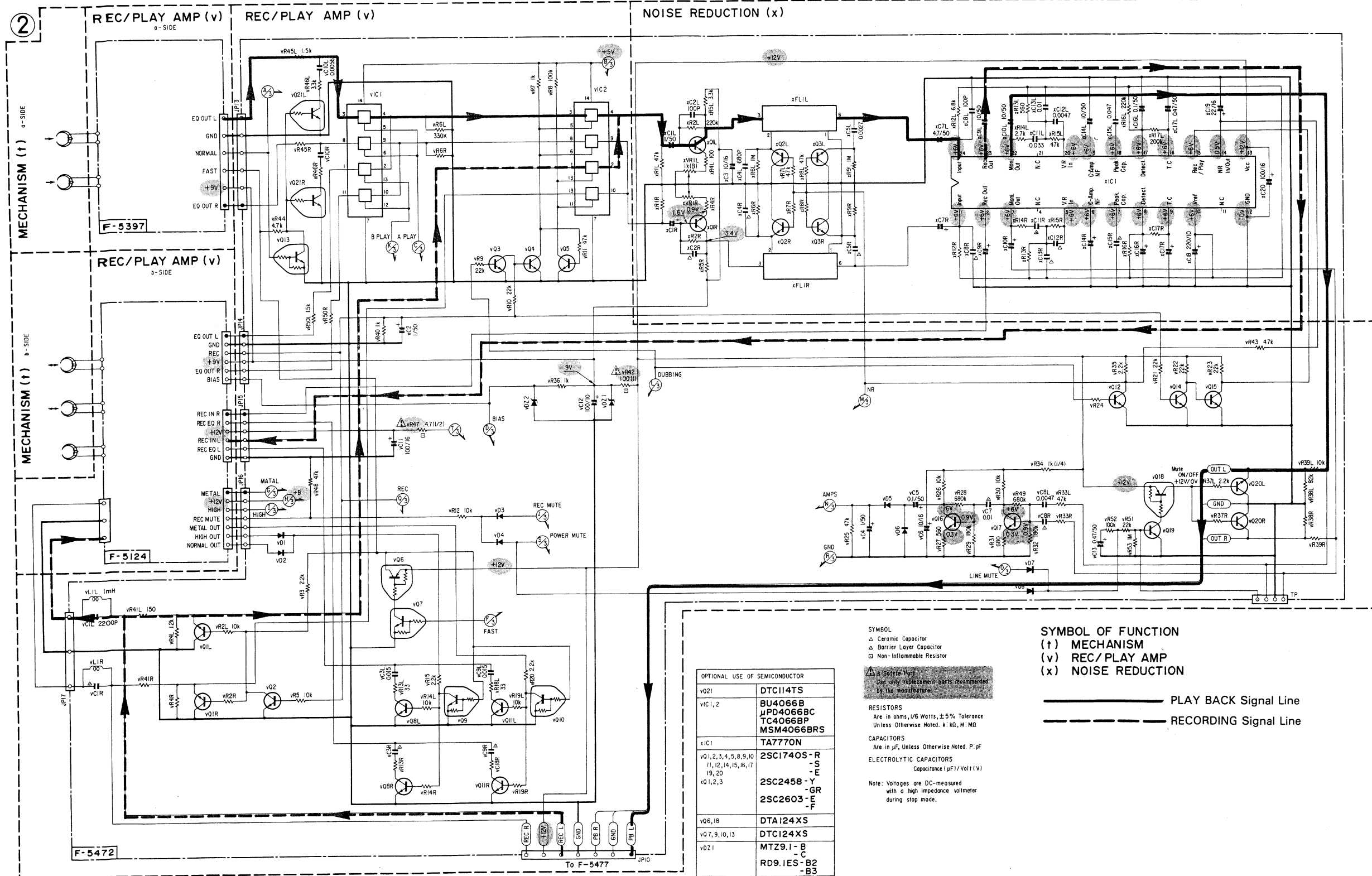
9-1. System Control and Graphic Equalizer Section

• Design and specifications subject to change without notice for improvement.
 • La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 • Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



9-2. Noise Reduction Section

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 * Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



2SA934
2SA952
2SA982
2SA1283
2SA1826
2SC1845
2SC2001
2SC2080
2SC2458
2SC3243

2SD313
2SD1468S
DTA124XS
DTC124XS

2SA933S
2SA1048
2SA1115
2SA1176
2SC1740S
2SC2458
DTA124ES
DTC124ES

2SJ103
BA6208
STK4191II

μPC78M10H
STK4042II

1: INPUT
2: GND
3: OUTPUT

μPD4066BC
μPD7507CU-220
BU4066B
LC4071B
LC4966
LC4969
LC7530
M40718P
M5218P
M5220P
M5228P
M50742-413SP
NJM4558D
TA7770N
TC4066BP

M51542L
M5278L05

1: IN
2: GND
3: OUT

1S1588
1S2473A
1S5133
11E2

DBA40C
RB402

05Z2.4
05Z3
05Z5.1
05Z13
05Z22
MTZ5.1A
MTZ5.1B
MTZ9.1C
RD2.4E
RD5.1ES
RD9.1ES
RD13E
RD15E
RD24E

μPC78L05A
DBB10B

1: INPUT
2: OUTPUT
3: GND

RB152

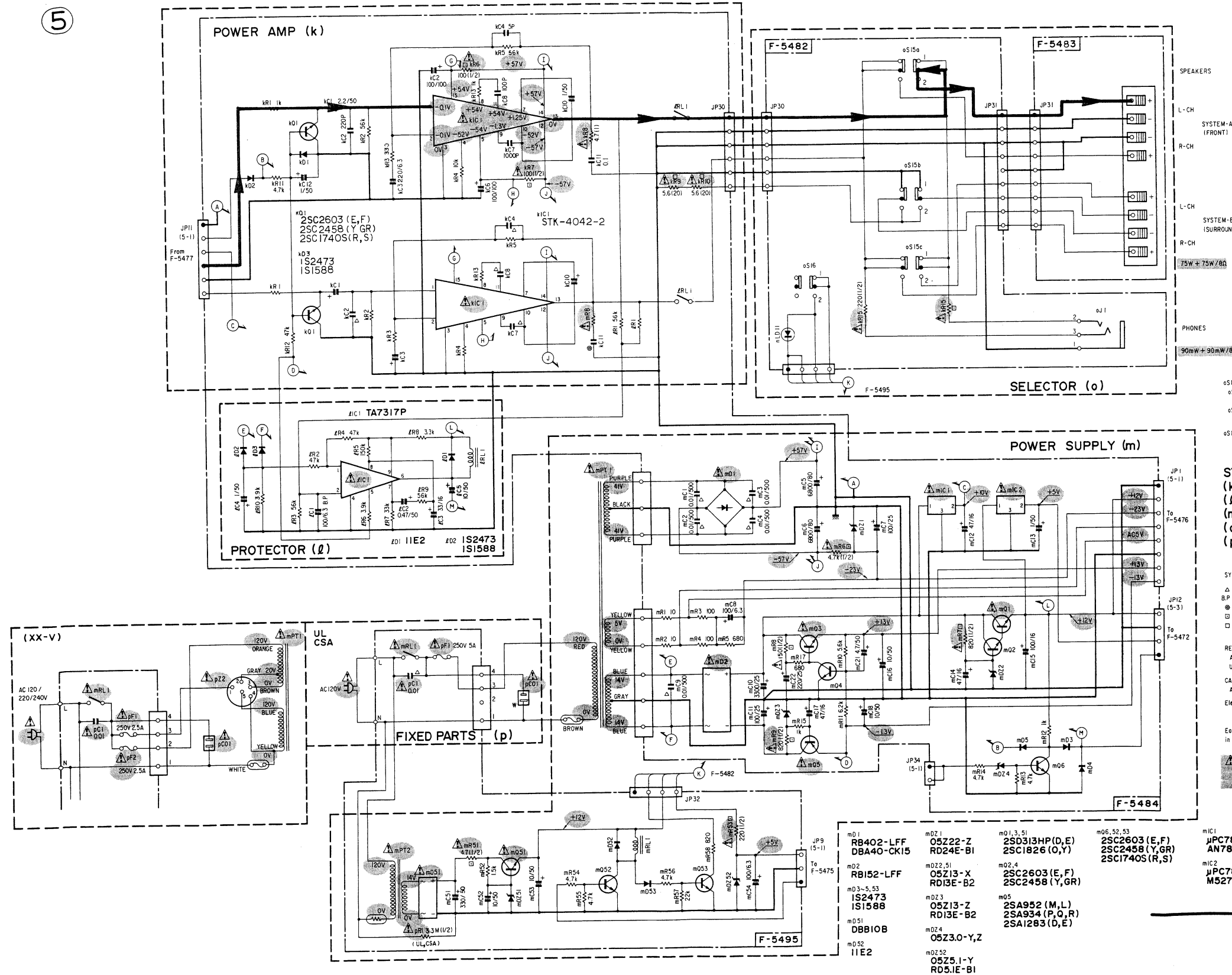
1: INPUT
2: OUTPUT
3: GND

- Design and specifications subject to change without notice for improvement.
- La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
- Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



9-4. DA-E90 Power Amp. & Power Supply Section

⑤



• Design and specifications subject to change without notice for improvement.
• La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
• Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

2SA934
2SA952
2SA992
2SA1283
2SA1826
2SC1845
2SC2001
2SC2080
2SC2458
2SC3243

2SD313
2SD1468S
DTA124XS
DTC124XS

2SA933S
2SA1048
2SA1117S
2SC1740S
2SC2458
DTA124ES
DTC124ES

2SJ103
BA6208
STK4191II

μPC78M10H
STK4042II

1: INPUT
2: GND
3: OUTPUT

μPD4066BC
μPD7507CU-220
BU4066B
LC4071B
LC4966
LC4969
LC7530
M4071BP
M5218P
M5220P
M5228P
M50742-413SP
NJM4558D
TA7770N
TC4066BP

M51542L
M5278L05

AN78M10

1S1588
1S2473A
1S5133
11E2

DBA40C
RB402

μPC78L05A
DBB10B

RB152

1: INPUT
2: OUTPUT
3: GND

1

2

3

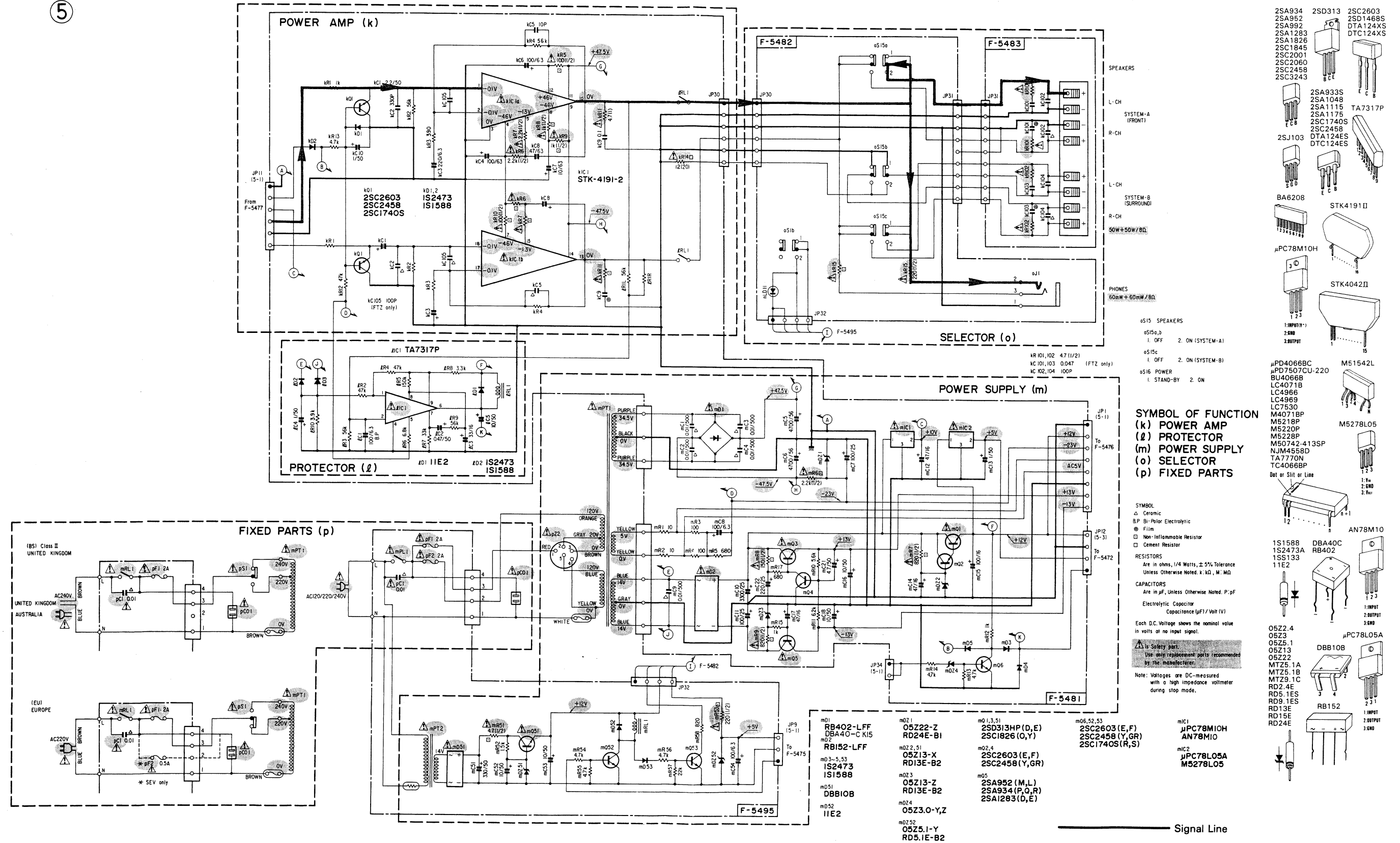
4

5

9-5. DA-E70 Power Amp. & Power Supply Section

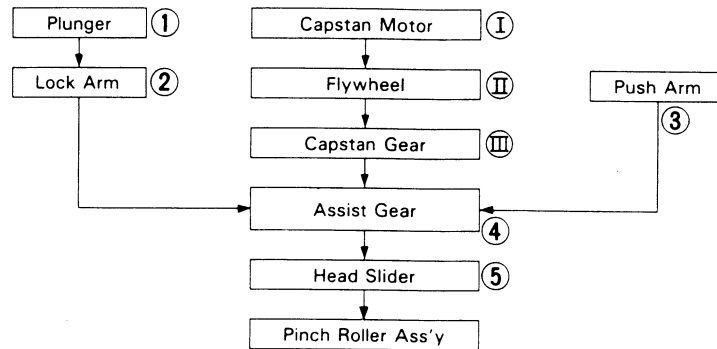
⑤

* Design and specifications subject to change without notice for improvement.
 * La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 * Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

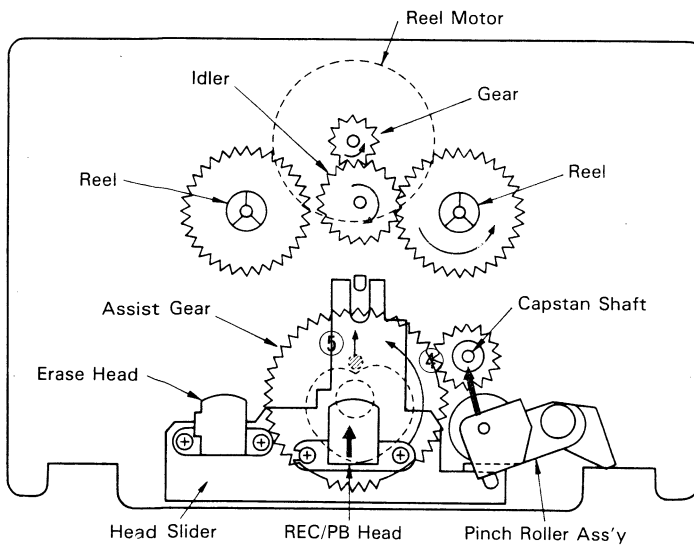


10. OPERATIONS OF PINCH ROLLER

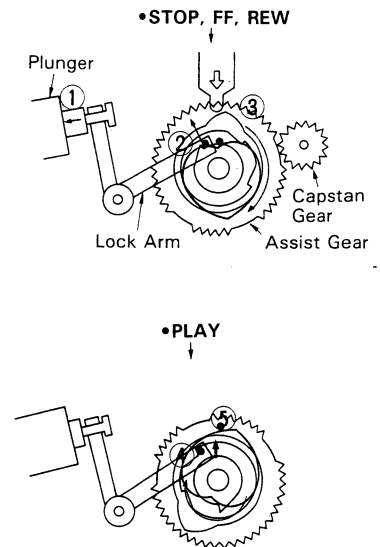
10-1. Torque Transportation Flowchart



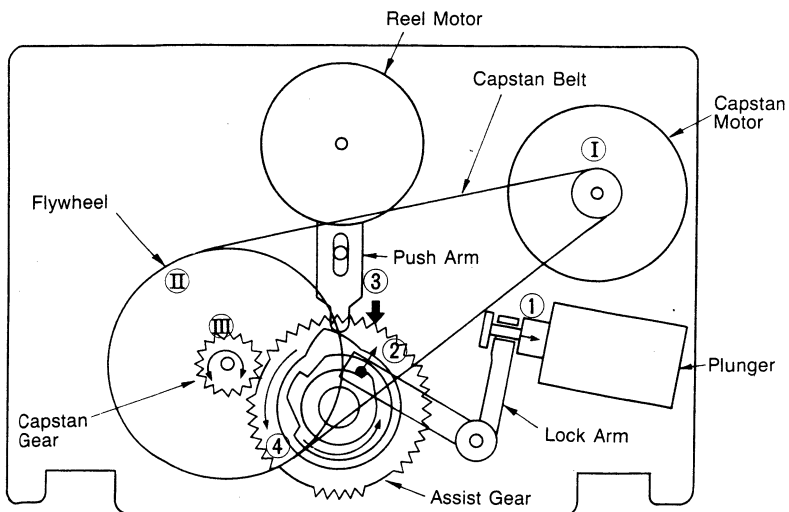
10-2. Front View of Mechanism Chassis



10-4. Cam Positions in the Modes of PLAY, FF, REW & STOP



10-3. Rear View of Mechanism Chassis



11. TERMINAL FUNCTION & INTERIOR BLOCK DIAGRAM OF ICs

11-1. Terminal Functions

•M50742-413SP <Cassette Mecha. Control>

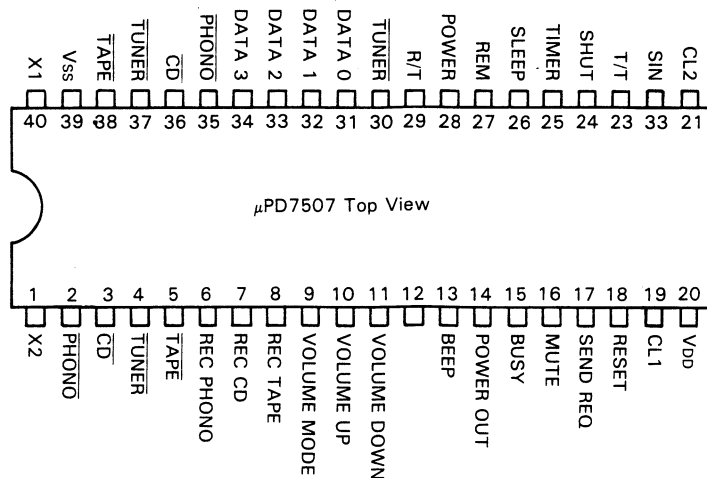
Pin No.	Pin Name	i/o	Description	ACTIVE	
				H	L
21 ~ 18	P34 ~ P37	o	Terminals for outputting key matrix return timing signals.		
33 ~ 40	P57 ~ P50	i	Terminals for inputting key matrix timing signals.		
4	a PLAY	o	This terminal outputs an "H" signal in PLAY or AMPS mode.	○	
5	b REC	o	This terminal outputs an "L" signal in REC or DUBBING mode of b-side mechanism.		○
6	b BIAS	o	This terminal outputs an "L" signal in REC or DUBBING mode of b-side mechanism.		○
7	b PLAY	o	This terminal outputs an "H" signal in PLAY or AMPS mode, but an "L" signal in REC mode.	○	
8	DUBBING	o	This terminal outputs an "H" signal in DUBBING mode.	○	
10	REC MUTE	o	Terminal for outputting REC MUTE signal. This terminal outputs an "H" signal until set to PAUSE mode, when REC MUTE key is depressed in REC mode.	REC Mute ON	REC Mute OFF
12	a ▷	o	Terminal for outputting a signal for driving ▷ indicator LED of a-side mechanism.		○
15	b ▷	o	Terminal for outputting a signal for driving ▷ indicator LED of b-side mechanism.		○
17	b REC	o	Terminal for outputting a signal for driving REC indicator LED of b-side mechanism.		○
23	a REEL PULSE	i	Terminal for inputting a pulse signal detected by reel motor driver circuit of a-side mechanism to perform auto-stop operation.		
25	LINE MUTE	o	Terminal for outputting LINE MUTE signal. If at "H" level, LINE OUT is muted.	Line Mute ON	Line Mute OFF
26	b REEL PULSE	i	Terminal for inputting a pulse signal detected by reel motor driver circuit of b-side mechanism to perform auto-stop operation.		
42	CAP FAST	o	Terminal for switching capstan motor speed from NORMAL speed dubbing to HIGH speed dubbing or vice versa in DUBBING mode. NORMAL speed dubbing at "L", HIGH speed dubbing at "H".	HIGH Speed Dubbing	NORMAL Speed Dubbing

Pin No.	Pin Name	i/o	Description	ACTIVE	
				H	L
42	CAP FAST	o	Further, in HIGH speed dubbing, f-characteristics of a-side mechanism reproducing amplifier are modified. The DUBBING indicator light comes on in response to this output signal. (Lighting)	HIGH Speed Dubbing	NORMAL Speed Dubbing
43	b REEL FAST	o	Terminal for switching b-side mechanism reel motor speed from NORMAL play to FF/REW or vice versa. If at "L" level, FF/REW speed is obtained.	Normal Play	F.F & REW
44	a REEL FAST	o	Terminal for switching a-side mechanism reel motor speed from NORMAL play to FF/REW or vice versa. If at "L" level, FF/REW speed is obtained.	Normal Play	FF & REW
45	b REEL M+	o	If at "L" level, b-side mechanism reel motor rotates CW.		○
46	b REEL M-	o	If at "L" level, b-side mechanism reel motor rotates CCW.		○
47	a REEL M+	o	If at "L" level, a-side mechanism reel motor rotates CW.		○
48	a REEL M-	o	If at "L" level, a-side mechanism reel motor rotates CCW.		○
49	AMPS	i	Terminal for inputting music blank signals in AMPS operation.	Music play	Music blank
41 ~ 53 ~ 56	P17 ~ P03 ~ P00	i/o	Terminals for remote-control computer selector, to which data from a remote-control system controller is inputted.		
60	SOL START	o	Terminal for generating a driving current to energize PLAY plunger. The plunger is initially energized by a pulse (JL).		
62	b PLAY SOL.	o	Terminal for outputting a current to hold b-side mechanism PLAY plunger. If at "H", PLAY plunger is held.	○	
64	a PLAY SOL.	o	Terminal for outputting a current to hold a-side mechanism PLAY plunger. If at "H", PLAY plunger is held.	○	
29 30	Xin Xout	-	Terminals to connect a OSC.		
1	V _{DD}	-	Power supply terminal.		

• μ PD7507CU <System Control>

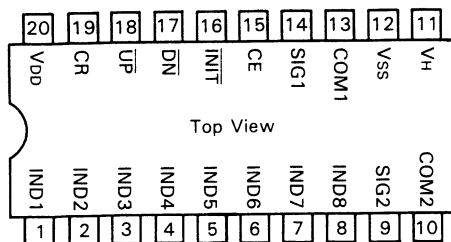
Pin No.	Pin Name	i/o	Description	ACTIVE	
				H	L
2 3 4 5	PHONO CD TUNER TAPE	o o o o	When a voltage applied to these terminals change from "H" level to "L" level, the input of the corresponding source is selected.		○
6 7 8	REC PHONO REC CD REC TAPE	i i i i	Terminals for inputting a signal for recognizing rec selector position.		○
9	VOLUME MODE	i	This terminal is used for selecting volume control method. "H" level Method of up/down volume control. "L" level Method of serial volume control	Up/ Down	Serial
10 11	VOL UP VOL DOWN	o o	These terminals are used for outputting a signal for activating an electronic volume. When volume UP/DOWN keys are depressed, and "H" level is outputted.	○ ○	
14	POWER OUT	o	This terminal is applied "H" level at power on condition and "L" level at power off (stand-by) condition.	ON	OFF
16	MUTE	o	This terminal is used for outputting a mute signal. In muting, this terminal becomes an "H" level signal as follows: 1)When power is turned on/off. 2)When anyone of the output terminals (PHONO to TAPE) is changed. 3)When remote control terminals or compu selector terminals are inputted a signal.	ON	OFF
17	SEND REQ.	o	Terminal for outputting request signal for serial data.	○	
23	T/T	i	Terminal to input a signal for recognizing the turntable condition (play or stop). A "L" level is applied to this terminal during play operation of turntable.	Stop	Play

Pin No.	Pin Name	i/o	Description	ACTIVE	
				H	L
24	SHUT OFF	i	This terminal is used for inputting timer start and shut off of cassette deck. Timer start operation at "H" level, shut off operation at "L" level.	Timer Start	Shut Off
25	TIMER	i	Terminal for inputting a signal for using an external timer unit. When this terminal is applied an "H" level, the external timer unit can be used.	Ext. Timer On	Ext. Timer Off
27	REM	i	Terminal for inputting a remote control data.		
28	POWER	i	Terminal for inputting a signal for receiving remote control on/off. In "H" level Remote control is received. In "L" level Remote control is not received.	Off	On
29	R/T	i	Terminal for inputting a signal for selectable receiver or tuner mode. In receiver mode: "H" level In tuner mode: "L" level	receiver	tuner
30	TUNER	i/o	Terminal for inputting/outputting a compu selector signal for tuner.		○
31 32 33 34	DATA0 DATA1 DATA2 DATA3	o o o o	Terminals for outputting a system control data. The data is outputted parallel.	○	
35	PHONO	i/o	Terminal for inputting/outputting a compu selector signal for phono.		○
36	CD	i/o	Terminal for inputting/outputting a compu selector signal for CD.		○
38	TAPE	i/o	Terminal for inputting/outputting a compu selector signal for tape.		○
1 40	X ₂ X ₁		Terminals to connect a OSC.		
20	V _{DD}	—	Power supply terminal.		



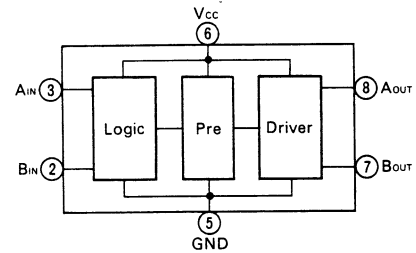
•LC7530 (Electric Sound Volume)

Pin No.	Terminal Name	Description																																																																																																																																																									
1~8	IND1~8	Sound volume position displaying output terminals: When $\overline{\text{INIT}}$ is at "L", only IND5 is at "H". <table><tr><th>Control terminal of analog switch</th><th colspan="8">IND</th></tr><tr><th></th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th></tr><tr><td>1</td><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>H</td><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td>H</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td>H</td><td>H</td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td>H</td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td>H</td><td>H</td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td>H</td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td>H</td><td>H</td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td>H</td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td>H</td><td>H</td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td><td></td></tr><tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td><td>H</td></tr><tr><td>13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td></tr><tr><td>14</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td></tr><tr><td>15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td></tr></table> *Blanks are all floating terminals H: P-channel comes on.	Control terminal of analog switch	IND									1	2	3	4	5	6	7	8	1	H								2	H	H							3		H							4			H	H					5				H					6				H	H				7					H				8					H	H			9						H			10						H	H		11							H		12							H	H	13								H	14								H	15								H
Control terminal of analog switch	IND																																																																																																																																																										
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9,14	SIG1,2	Analog switch input terminal: Signals to be attenuated by the IC are inputted.																																																																																																																																																									
10,13	COM 1, 2	Analog switch output terminal: Signals attenuated by the IC are outputted.																																																																																																																																																									
11	V_M	Bias voltage terminal: When a signal bias voltage is required, this terminal voltage (1/2 V_{DD}) is used.																																																																																																																																																									
12	V_{SS}	GND terminal																																																																																																																																																									
15	CE	When this terminal voltage is set to GND level, the IC is set to back-up mode and the output is in a floating state. Power consumption is reduced.																																																																																																																																																									
16	$\overline{\text{INIT}}$	Initial terminal: If at "L", step is 9 and terminal IND5 changes to "H".																																																																																																																																																									
17	$\overline{\text{DN}}$	When this terminal voltage is decreased, the step decreases and attenuation constant increases. Further, if kept at "L", attenuation constant increases continuously; however, the instant the terminal voltage is set to "H", the attenuation constant is held at that step.																																																																																																																																																									
18	$\overline{\text{UP}}$	This terminal voltage functions reversely of that at DN terminal. When UP and DN are both at "L", $\overline{\text{UP}}$ terminal has a priority. Further, terminal voltages at $\overline{\text{UP}}$ and DN stop changing in response to MSB or LSB.																																																																																																																																																									
19	CR	This terminal is used to determine step speed. Resistors and capacitors are connected (open drain).																																																																																																																																																									
20	V_{DD}	Positive power supply terminal																																																																																																																																																									



11-2. Interior Block Diagrams

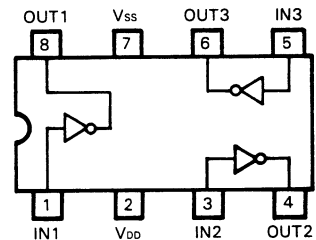
•BA6308 (Motor Drive)



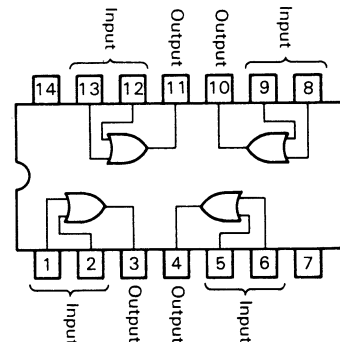
Input		Output		Output Mode
Input A	Input B	Output A	Output B	
1	1	L	L	Motor Short
1	0	H	L	Normal Turn
0	1	L	H	Reverse Turn
0	0	—	—	Motor Open

1: More than 2.0V, 0: Less than 0.8V

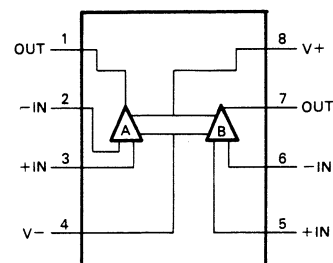
•LC4969 (Triple Inverter)



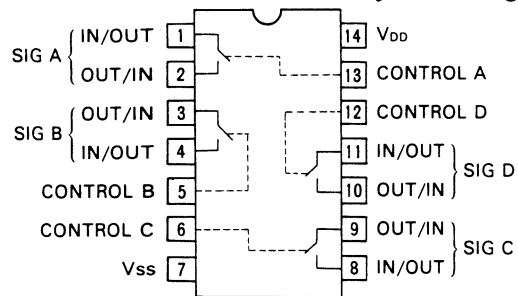
•LC4071B, M4071BP & MSM4071BRS (Quad OR)



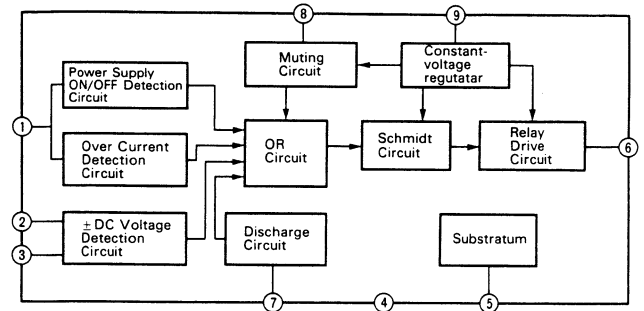
•M5218P, M5220P & NJM4558D (OP Amp.)



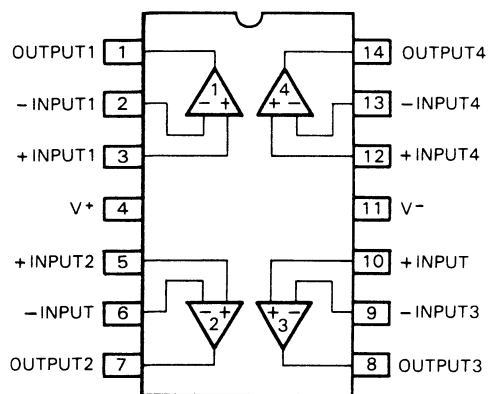
•BU4066B, MSM4066BPS, μ PD4066BC & TC4066BP
(Quad Analog SW.)



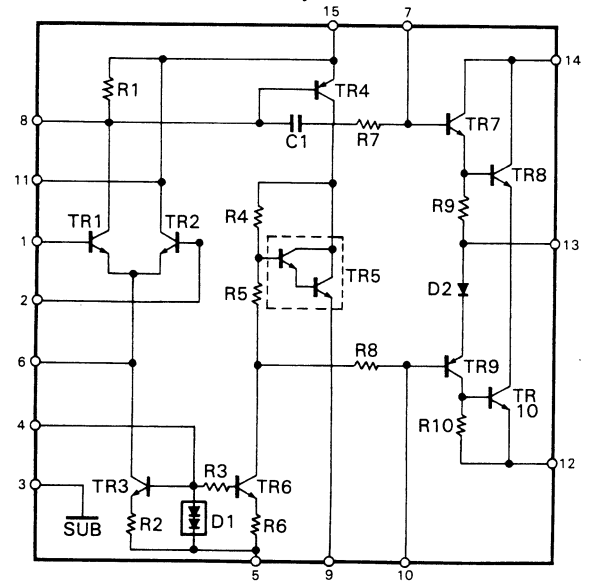
•TA7317P (Speaker Protector)



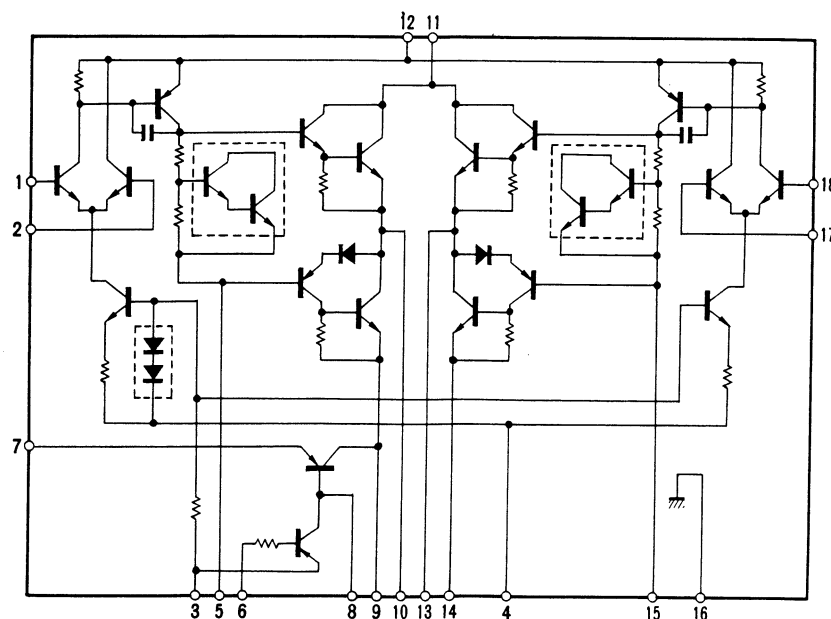
•M5228P (OP Amp.)



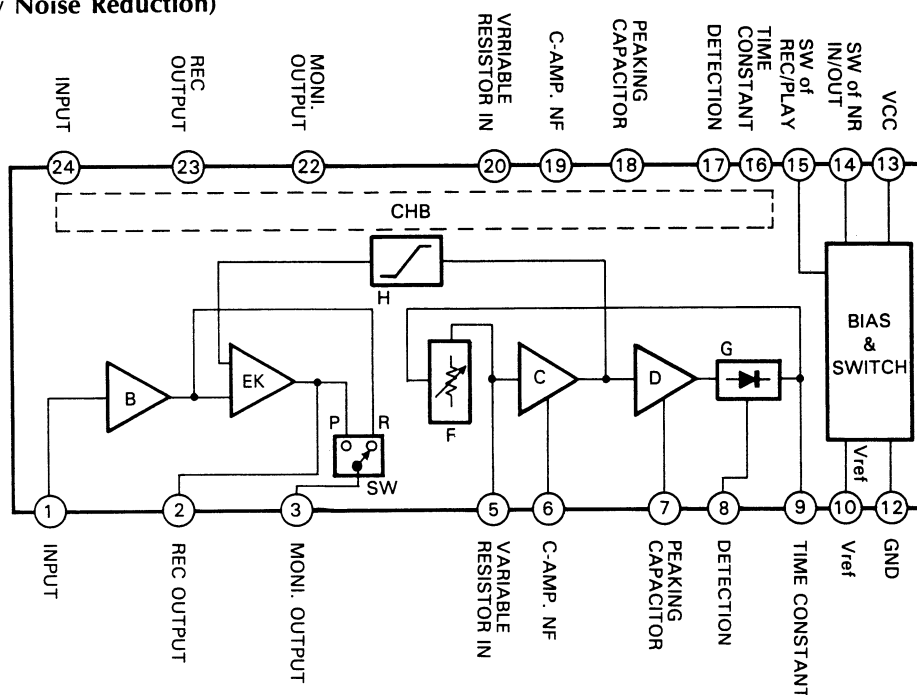
•STK4042II (AF Power Amp.) <DA-E90>



•STK4191II (AF Power Amp.) <DA-E70>

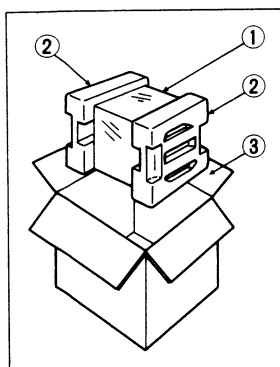


•TA7770N (Dolby Noise Reduction)



12. PACKING LIST

Parts No.	Stock No.	Description
1	47859600	Vinyl Bag
2	27233700	Styrofoam Packing
3	27258300	Carton Case (DA-E90)
	27232200	Carton Case (DA-E70)



13. ACCESSORY LIST

Stock No.	Description
49015500	Operating Instruction <DA-E90>
49014400	Operating Instruction (*E·F·S) <DA-E70>
49014500	Operating Instruction (*G·I·Sw) <DA-E70>
48521700	13P ST Connector Cable
48521800	10P ST Connector Cable
	RS-D1 Remote Control Unit

***Note:**

E·F·S: English·French and Spanish Version

G·I·Sw: German·Italian and Swedish Version

Sansui

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SANSUI ELECTRONICS CORPORATION:

SANSUI ELECTRONICS (U.K.) LTD.:
SANSUI ELECTRONICS G.M.B.H.:

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(SM1-327)

(1986.9.M) <Stock No. 36526400>